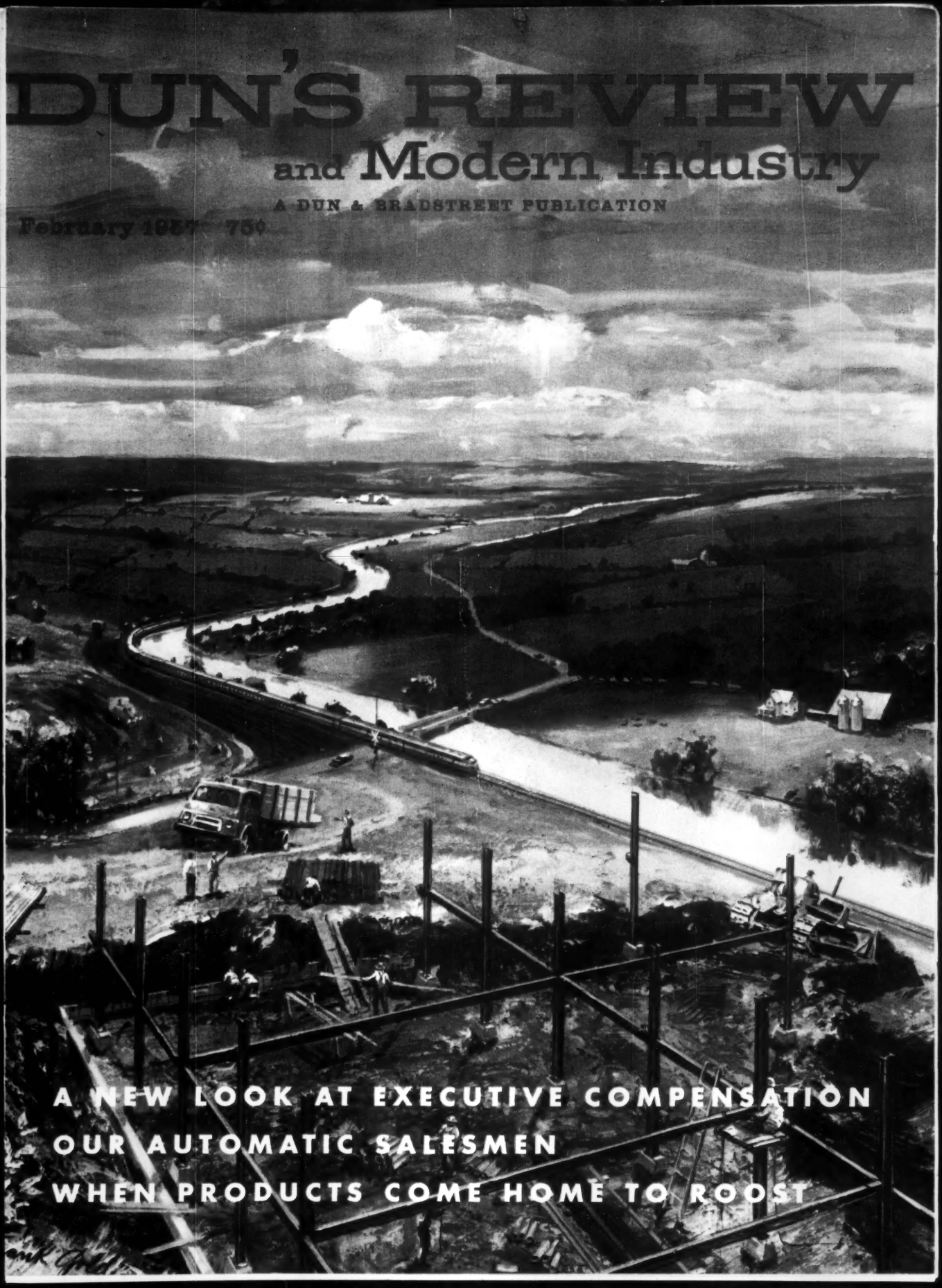
DUN'S REVIEW and Modern Industry

A DUN & BRADSTREET PUBLICATION

February 1957 75¢



A NEW LOOK AT EXECUTIVE COMPENSATION

OUR AUTOMATIC SALESMEN

WHEN PRODUCTS COME HOME TO ROOST

LOW HAULING COSTS COME RIGHT FROM THE "HEART" OF A '57 CHEVY

Many of the things that make a Chevrolet truck more economical to run are seldom seen by the owner. They're hidden features, deep in the truck's design. Here are just a few of them, to prove a Chevy's engineered better and built better for bigger savings!

1. *Forged steel crankshaft*—It's extra sturdy, precision machined and balanced, the foundation for dependable, long-lasting power!

2. *Aldipped exhaust valves**—Special aluminum treatment on valve surface protects valves against pitting; engine wears less, costs you less to run!

3. *Hydraulic valve lifters*—for longer valve life in V8's, fewer engine repair jobs.

4. *Chevy V8 piston*—Thanks to *short-stroke* V8 engine design, this piston travels a shorter distance, wears less. Short-stroke efficiency aids fuel economy, too!

5. *Oil-bath air cleaner—standard* on all Chevrolet truck engines for added protection against dust and foreign matter that shorten engine life.

6. *High-capacity oil filters***—They remove dirt particles from Chevy engine oil to cut engine wear and maintenance.

7. *Easy-adjust distributor points*—You can adjust this new Chevy V8 distributor *with the engine running*; it's added insurance against costly down time.

8. *Multiple fuel filters*—For *clean* fuel, all Chevy engines have fuel filters in the carburetor and fuel tank; in addition, V8's provide an *extra* filter at the carburetor.

9. *Ball-Gear steering mechanism*—Inside this steering gear scores of polished steel balls virtually eliminate friction. Less friction means less wear, less maintenance!

10. *Rugged manual transmission*—Synchro-Mesh design eliminates the need for double-clutching, reduces costly wear. Gears are shot-peened for extra strength.

11. *12-volt battery*—provides sure starting, good ignition, long battery life in all Chevrolet trucks.

And there are many more! See your Chevrolet dealer for all the dollar-saving facts. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**On Thriftmaster 6, Trademaster V8.*

***Standard on V8's and Jobmaster, optional on Thriftmaster 6.*

1957 CHEVROLET TASK·FORCE TRUCKS

PROVED ON THE ALCAN HIGHWAY . . . CHAMPS OF EVERY WEIGHT CLASS! CHEVROLET

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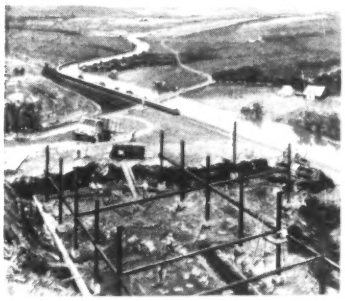

A new plant takes root on a rural hill, fed by water, rail, and road. Important elements in the growth of the country's productivity are included in this painting especially executed for the magazine by Frank Golden.

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THE COMMONWEALTH OF PENNSYLVANIA

Pennsylvania Industrial Development Authority announces

100% financing for your new plant

through Pennsylvania's Community-State Building Programs

A message to Manufacturers seeking a New Plant Site

New 25-year, 2% interest Second Mortgage Loans by the Pennsylvania Industrial Development Authority offer unique assistance to community industrial programs*. . . help "close the financing gap" to assure *low cost 100% financing of your new plant building in Pennsylvania.*

Added to commercial First Mortgages, plus funds supplied by local communities – these new loans can reduce demands on your working capital for a new industrial structure.

Over 70 Pennsylvania communities now have fund raising experience in the organizing and capitalizing of industrial buildings. Several plant shells are ready for completion.

As a businessman, you work directly with these communities and private lending agencies.

You specify plant construction details. You have the choice of purchase, lease-purchase or straight leasing arrangements on highly attractive terms. You select the type of community that best suits your location requirements.

**110 community-sponsored industrial plants constructed in Pennsylvania since 1945.*

100% FINANCING AT A GLANCE

How P.I.D.A. 2nd Mortgage Funds "close the financing gap". . . encourage sound investment by private capital:

Industrial Plant Construction Costs –

Subscribed by local non-profit community-sponsored builder-owner corporations.	20%
2nd Mortgage Loan, Pennsylvania Industrial Development Authority.	30%
1st Mortgage Loan obtained from banks, insurance companies and similar lending institutions.	50%
Total financing, secured through local subscriptions and mortgage loans, *without cash investment by the manufacturer.*	100%

MORE DATA ON P.I.D.A. 2ND MORTGAGE LOANS

Minimum interest rate, 2% per annum.

Maximum term, 25 years.

Available on up to 30% of industrial plant construction costs.

Made to non-profit community corporations organized to encourage local industrial development. The Authority does not engage in direct construction or ownership.

Limited to Labor-Surplus Areas . . . assuring a plentiful supply of skilled labor, high productivity, low labor costs . . . from stable, permanently-rooted small town people.

For more details, write or call: Pennsylvania Department of Commerce
Pennsylvania Industrial Development Authority
Main Capitol Building, 399 State Street
Harrisburg, Pennsylvania
Phone: CEdar 4-2912

"Plant" your business in Pennsylvania and prosper!

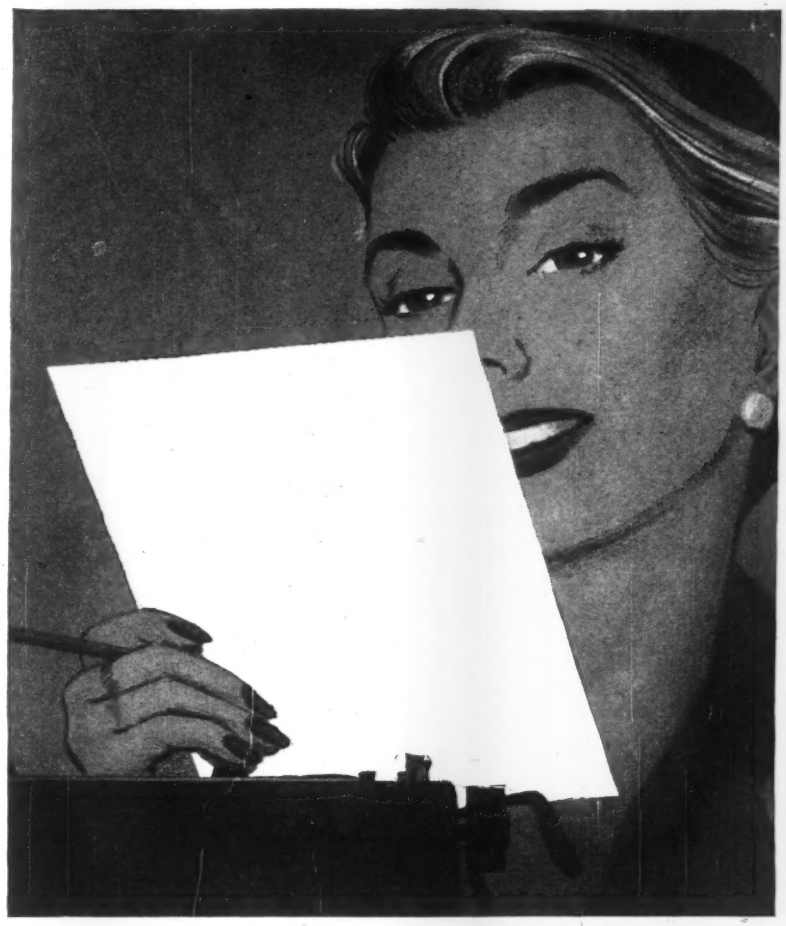
the REVIEWING STAND

• Our art director, Clarence Switzer, has received a host of compliments for the December cover of DUN'S REVIEW AND MODERN INDUSTRY, which featured the American flag unfurled over President Eisenhower's 1953 inaugural prayer. More than 1,000 reprints of the cover have been sent out in answer to requests, which are still coming in strong as this column goes to the printers. One laconic request identified the flag and inaugural prayer as follows: "Please send one 'Almighty God' at your earliest convenience." If you want a framing copy of the December cover, let's hear from you. There's no magazine identification or overprint on the artwork.

• If automation is a topic of concern to industry, it is no less a reality to distribution. The vending machine has been with us a long time, originally and almost exclusively for the gum and candy buyers. Then came the cigarette vendors and the soft-drink machines. Now, according to Aaron Sternfield in "The Salesman Who Never Sleeps," you can buy anything from a snack to a meal from the mild-mannered machine, and who knows what the future may hold for the shopper? Women's wear from windows specially contrived with gowns and wrapping facilities is a possibility but not a probability, says Mr. Sternfield. Bringing a dress back to an apparel automat and demanding a refund might be a trifle frustrating. And what about the juke boxes, pinball machines, and one-arm bandits? We buy a lot of entertainment and exasperation from these vendors, but maybe that's another story.

• We introduced the standard size DUN'S REVIEW AND MODERN INDUSTRY with the November issue. We've lost track of the number of letters and telephone calls telling us how much readers favored the reduced proportions of the pages. Here is an excerpt from one letter, whose writer exercised no verbal restraint:

"May I congratulate you heartily



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Because brighter, whiter WESTON BOND is in the most economical cotton content grade, it is today's biggest bargain in quality letterhead paper. Compare it for whiteness, brightness, opacity, texture, impressiveness. Then ask your printer to use it for your next lot of letterheads. When you see the difference, you'll be glad you did. Write for sample book. Address Dept. DR. Byron Weston Company, Dalton, Massachusetts. *Makers of Fine Papers for Business Records Since 1863.*

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brighter whiter

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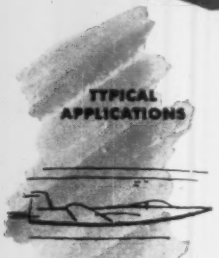
CORROSION-RESISTANCE, PAINT BASE on ALUMINUM and MAGNESIUM

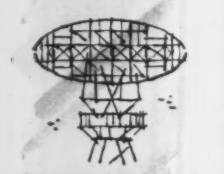
TYPICAL APPLICATIONS



Aircraft and Missile Parts

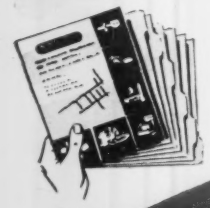
Automobile Hardware

Outdoor Furniture



Communications Equipment

Marine Equipment



EASE OF USE—Iridite is a simple chromate conversion treatment. Fast, easy, economical. You just dip, brush or spray it on the part at room temperature. No special equipment. No specially trained personnel.

OUTSTANDING PERFORMANCE—Forms a film that is an integral part of the metal itself. Can't flake, chip or peel. Takes paint firmly on initial application, and the bond lasts. Even protects areas scratched in use.

LOWEST COST—You have only minimum equipment cost, no special racks, high speed operation, lower overall handling costs.

CHOICE OF APPEARANCE—Clear coatings that retain metallic lustre to dark, maximum protection coatings. A variety of colors is available by dyeing.

IRIDITE # 14 and # 14-2 (Al-Coat) for ALUMINUM

Two specially formulated finishes that give you maximum latitude in aluminum treatment. Both provide excellent corrosion protection and paint base. Iridite #14-2 is an improved product that allows greater flexibility in operation and coating thickness and produces the optimum in corrosion protection.

Either coating provides corrosion resistance superior even to complicated electrolytic treatments in a fraction of the time. These coatings also offer many other valuable characteristics: they have low electrical resistance, they aid in arc-welding, provide a good base for bonding compounds, have no effect on the dimensional stability of close-tolerance parts. Final appearances ranging from clear through yellow iridescence to full brown can be obtained. By dyeing, you can produce red, green, blue, orange or yellow finishes.

IRIDITE # 15 for MAGNESIUM

Produces a protective, paint base film with corrosion resistance at least equal to that obtained from long, high-temperature dichromate treatments in a fraction of the time and at room temperature. The appearance of the coating can be varied from light brown to dark brown and black.

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SEE FOR YOURSELF WHAT IRIDITE CAN DO . . . SEND SAMPLE PARTS FOR FREE PROCESSING. Look at the results, test the protection, evaluate the savings. Also write for handy Reference File of the most complete data published on chromate conversion coatings. Or, for immediate information, call your Allied Field Engineer. He's listed under "Plating Supplies" in your classified phone book.

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on your wisdom and courage (I can hear the agencies' rumbling from here) in changing the size of your journal. Any paper or journal larger [than the standard size] is a vile abomination to its readers. I just can't sit at a table to read it, and I can't be bothered to try to hold it.

"Today there is little space to store periodicals, but any journal worth subscribing to often contains articles one tears out and wants to keep. How do you file these bastard shapes and sizes? Brother, *I love you.*"

Most readers mentioned convenience in reading and filing; others seemed pleased with how easily the new size can be carried while travelling on trains and planes. Not a single complaint has been heard about the change. This should be a lesson in avoiding preconceived notions of what readers or advertisers want. Our editorial and advertising staffs originally favored the larger size, assuming that readers preferred the kingly proportions. Such assumptions are often the blinders of complacency. When we surveyed our readers prior to the change, 70 per cent explicitly stated that they'd prefer the standard size.

• People make news, and a lot of people make a lot of news. Dr. Ralph J. Watkins, our contributing editor, is preparing a series of short articles on the effects of our growing population on business, drawing on DUN & BRADSTREET *Reference Book* statistics from 50,000 communities as a basis of analysis and comparison. Dr. Watkins is chairman of Council of Population and Housing Census Users and several other statistical groups.

• Currently, DUN & BRADSTREET is querying 3 million business enterprises on "How are things?" but not exactly in those words. Every manufacturer, wholesaler, retailer, and contractor receives a request for balance sheet information, which data become part of the confidential files. In a letter accompanying the statement form, DUN & BRADSTREET is offering a twenty-page booklet, *Pitfalls in Managing a Small Business,* by our director of training, Hayden Kuehn. Single copies free, on a first-come, first-served basis. Write to "The Reviewing Stand," DUN'S REVIEW AND MODERN INDUSTRY, 99 Church Street, New York 8.

—A. M. S.

from order to invoice...

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From first step to final record, all the paperwork you require to process an order is reproduced from *just one writing*—with Ozalid.

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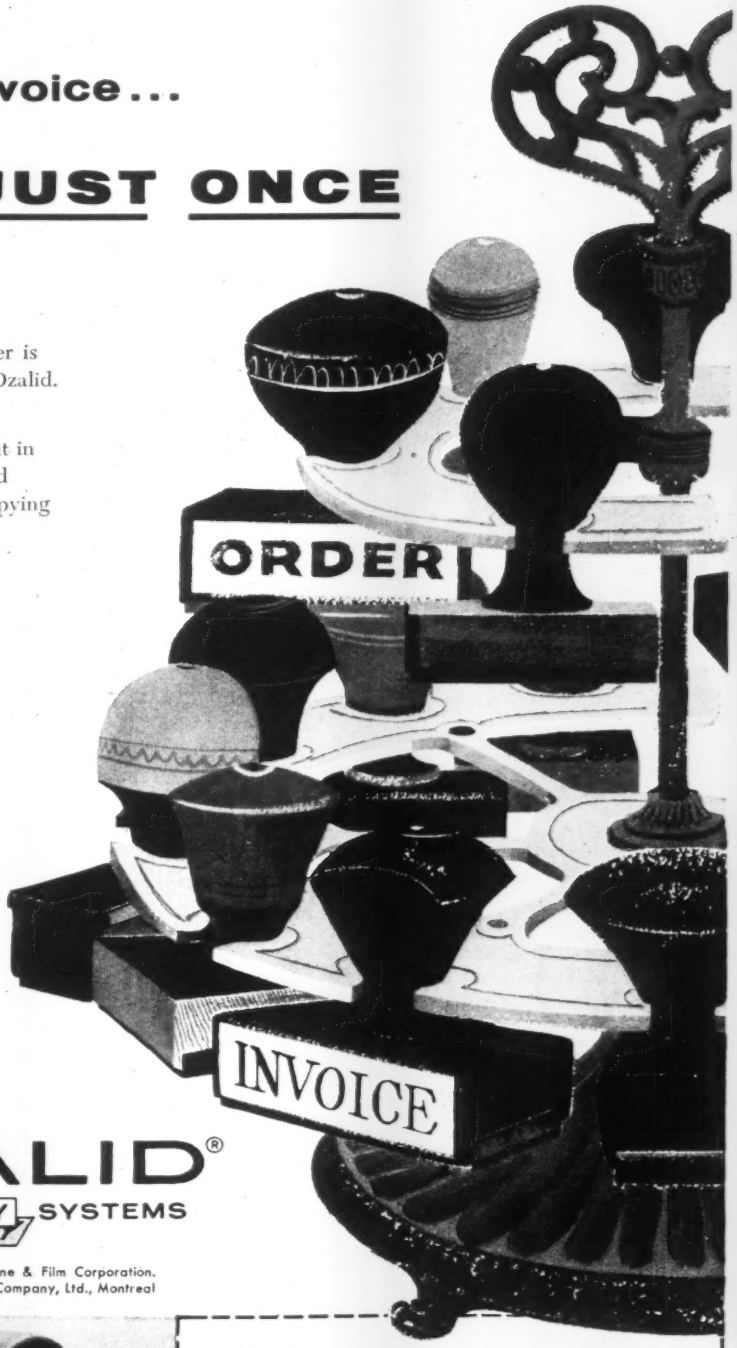

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HEARD IN WASHINGTON

HIGHLY OPTIMISTIC business forecasts for 1957 coming from spokesmen for the Administration are discounted by many on the ground that such officials hardly could be expected to comment otherwise. These statements, however, have the support of the career men who work with the mass of business facts and figures gathered by the Government.

While "good times" are foreseen for "the entire year of 1957 with continued increases in employment, income, and production," it is pointed out that this depends on "wise planning, sound action, and hard work" and that the economy is operating at close to maximum capacity and cannot be expected to keep on going up at the 1956 rate. The statements are coupled with warnings that excesses must be avoided, particularly with regard to price increases and the use of credit. Much is made of the fact that 1956 expenditures for plant and equipment were up 20 per cent, but the predicted outlook is for no further rise. No single member of the Advisory Council of the Secretary of Commerce expects the second half of 1957 to be better than the first half. The outstanding business executives making up that Council expect a leveling off, and possibly some decline, in the second half.

By adding the words "relationships of the Union to other nations of the world" to the historic title "Report on the State of the Union" the President has emphasized that, politically and economically, the situation abroad is as important to our welfare as is the state of the union.

What the President said about inflation follows the line of the warnings that have been sounded frequently by Administration officials. The mail of legislators and other officials is proof that the public is pleased with the reiteration of those warnings.

Judging also by the mail and other comment reaching Washington, the prospect of a monetary commission is widely acclaimed. But some Congressional jealousies have been aroused. Some members of the Joint Committee on the Economic Report are unhappy because they would be left out of the act if the President's recommendation were followed. The authorization may specify that the Senate and House be represented on the commission. The general feeling is that a broad inquiry into the adequacy of "the mechanism through which monetary and credit policy take effect" would be constructive. An opportunity would be provided for a thorough study of the unequal impact of present monetary policy. The Federal Reserve defends present policy with the argument that allocation of credit would be dictatorial. Its members think the impersonal decisions of the market place are to be preferred to the judgments of public authorities.

Although the Administration is anxious to see some check on wage and price spirals, it is reluctant to recommend direct controls. Extension of the anti-trust statutes to labor unions is not regarded as a practical approach, even were such legislation obtainable.

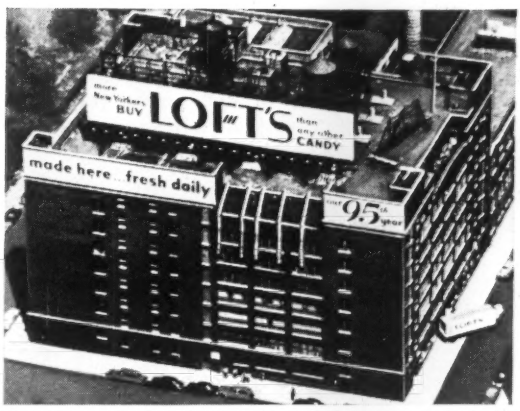
The hope is that the states will become more active in this field. While there is opposition within the Cabinet to right-to-work laws, some of the Administration's advisers feel that this is an effective approach in countering nationwide bargaining. Certainly the states are in a position to prevent violence on picket lines and to provide protection for those who wish to work.

Legislators will show more courage in opposing the views of labor leaders since the Presidential election demonstrated again that wage earners will not necessarily follow the recommendations of their leaders when it comes to voting.

A high head of pressure is behind proposals to aid small business through tax reduction. But doubt is expressed that any proposal will get through if it does not apply to partnerships and proprietorships as well as to small concerns that are incorporated. One organization of small businesses has come forward with a proposal that businesses be allowed a specific exemption based on a percentage of the graduated individual income tax.

What will happen in the way of tax legislation in general is uncertain. Members of the Ways and Means Committee hesitate to bring out even minor changes in the existing law since any such bill would be subject to amendment, in the Senate at least. Even a minor change might balloon into a measure that would mean more loss of revenue than either party wants.

Charges that the highway program is lagging were met by figures submitted to the Senate Public Works Committee showing that the $1.5 bil-



WORLD'S LARGEST CANDY KITCHEN devoted exclusively to manufacture of home style candies. There's MUZAK in every department.

MAKING WORK PLEASANT. Over 2,000 Loft employees are relieved of tension and fatigue by "Music-While-You-Work" by MUZAK.

ABSENTEEISM DOWN 7%

PRODUCTION UP 9%

...through Relief of Worker Tension

These were the impressive results that convinced LOFT'S, the World's Largest Candy Kitchen, they should install "Music-While-You-Work" by Muzak in Every Department

MUZAK Can Do So Much— for So Many Different Kinds of Business

A Tennessee building supply company found MUZAK in one department alone caused production increases worth $300 to $400 a month. MUZAK in factories lessens boredom of monotonous work, thereby cuts fatigue, absenteeism, turnover.

A Mississippi power company reported that key punch production of its IBM operators hit an 11-year high only 2 months after MUZAK was installed. Offices find it reduces "noise fatigue" . . . cuts down clerical errors and unnecessary conversation . . . aids concentration.

A Kansas bank cut bookkeeping errors 49% with MUZAK. Many banks promote both office efficiency and customer good will by providing MUZAK for staff and public alike.

A Long Island food market found that MUZAK stimulates customers' impulse buying. "Customer spending more time in store — larger per-customer sale."

An Oklahoma hotel attempted its own music system, is now "extremely happy" it switched to MUZAK. It encourages guests to linger longer.

Muzak
Music Service

*MUZAK—Reg. U. S. Pat. Off.

WOULDN'T IT BE WONDERFUL if you could lessen tension – fatigue – carelessness – unnecessary conversation – absenteeism – and turnover – among the workers in your factory, office, or plant . . . *simply by pressing a button?*

With "music-while-you-work" by MUZAK, you can! Every morning, just a flick of a switch brings your company all these benefits and many more.

Loft Candy Corporation, New York City, tried MUZAK in one department of their modern block-long candy kitchens – and found that it resulted in a 7% reduction in absenteeism, and a 9% increase in average production. As a result, the management extended the use of MUZAK throughout the building, and is now completing plans for MUZAK in Loft offices.

"MUZAK relieves tension," says Miss Bessie Allen, Assistant to President and in Charge of Quality Control. "We have also noticed that turnover is less — MUZAK adds so much to the pleasantness of the working atmosphere."

Ordinary music cannot accomplish results like these. Twenty years of MUZAK research and development have established certain minimum requirements for a successful work music system.

YOU NEED A SPECIAL KIND OF MUSIC which is "heard but not listened to" — which stimulates people without distracting them. MUZAK has its own exclusive $10,000,000 treasury of custom created *non-distracting* background music.

YOU NEED SCIENTIFIC PROGRAMMING to suit the time of day, place, and type of work activity. Each MUZAK program is based on twenty years' study of the psychological and physiological effects of music on people.

YOU NEED "CONTROLLED DYNAMICS" to penetrate noise barriers, mask out unwanted noise, without becoming distractingly loud — a technique which MUZAK has pioneered.

YOU NEED A COMPLETELY AUTOMATIC SYSTEM which avoids the cost of assigning personnel to purchase and store records or tapes, determine schedules, operate and maintain equipment. MUZAK is transmitted automatically from MUZAK studios in all principal cities. Spot installations available for trains, planes, ships, busses and remote locations.

FREE—"An Answer to Worker Tension"

Worker Tension may be costing your company more than you realize. Find out more about how work music can relieve worker tension. Mail coupon for free booklet. No obligation.

MUZAK Corporation, Dept. 52
229 Fourth Avenue, New York 3, N. Y.

Please send me, without obligation, a free copy of "An Answer to Worker Tension."

Name ..... Position .....

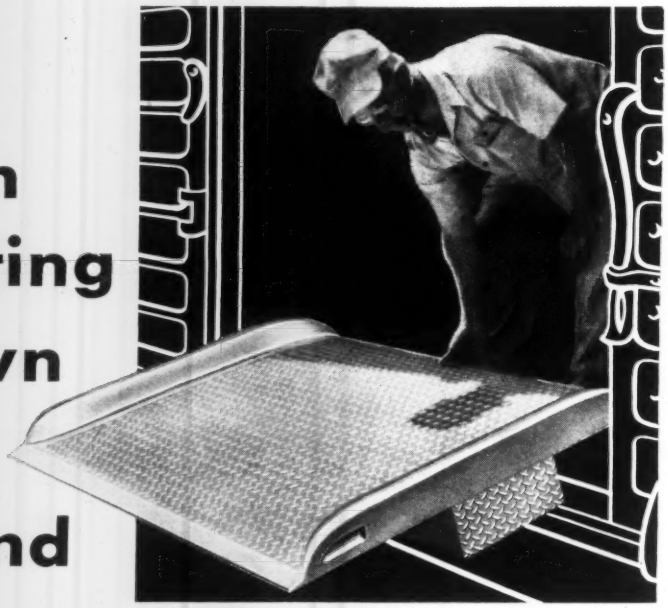
Company .....

Type of Business ..... No. of employees .....

Street .....

City & Zone ..... State .....

man putting down a sound investment



. . . ONE THAT WILL SPEED LOADING AND KEEP COSTS DOWN

This company has made a wise investment—one which will pay dividends over a long period of time! The man above is putting a Magliner magnesium dock board in place on the company's dock. This new Magliner will speed loading . . . get more out of power trucks and other loading equipment . . . keep costs down. Made of light, strong magnesium, the dock board is easily moved and positioned by one man. No heavy lifting . . . no risk of physical injury, it will protect men, loads and equipment against accidents and costly damage.

Magliner magnesium dock boards are designed to meet both ordinary and out-of-the-ordinary loading conditions . . . eliminate costly delays and bottlenecks . . . make loading costs go down! Engineered and built *to take it*, they safely handle loads up to 20,000 lbs.

Magliner dock boards will pay other big dividends, too. They are low in initial cost and because they provide dependable, long-life service with less maintenance, they give you greater economy ALL-ways.

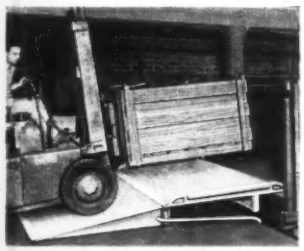
Find out today, how Magliner magnesium dock boards can cut loading costs in your operation. Write for Bulletin DB-204.

MagLiner MAGNESIUM DOCK BOARDS

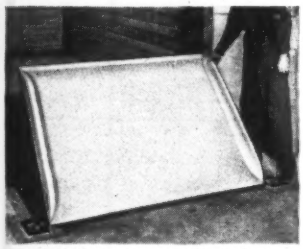
- **Tire-Saver safety curbs**—prevent truck run-offs and stop power truck tire damage. An exclusive Magliner feature.*
- **Beveled edges**—avoid hazardous load jar, eliminate equipment damage and load loss.
- **Rugged, permanently attached understructure.** Fits snugly between dock and carrier—provides positive, automatic position-lock.
- **Triple strength curb ends***—double tapered for wide angle turns.

*Patent Pending

SEND YOUR NAME AND ADDRESS FOR A COPY OF BULLETIN DB-204, TO MAGLINE INC., P. O. BOX 12, PINCONNING, MICHIGAN.



Magliner Dock-and-Ramp combination services high-floor trailers. Allows greater rise . . . longer slope . . . safer loading. Dock board may be used independently.



Multi-Station volume loading? Magliner Magnesium Perma-Docks are the answer. A low cost, permanent installation.

lion obligated in 1956 exceeded funds made available for 1954 and 1955 combined. Federal Highway Administrator John A. Volpe presented the figures and predicted that the increased capacity being brought in by the cement industry would meet the additional requirements of the new program. Structural steel shapes and steel plates are difficult to obtain in the quantities needed, but the problem is being solved by the use of substitute materials.

Land values along the routes being selected for the new highways are spurting upward. Commercial use of land immediately adjacent to the roads will be prohibited, but there is brisk demand for the land farther back. Some industries are planning locations near the new arteries. States and counties are planning feeder roads to access points on the new thru-ways. Full impact of the program, however, will not be felt until 1959.

Because it "creates unfair competition, over-expansion and danger to small business," Senator Harry F. Byrd, chairman of the Finance Committee, voices concern over $7 billion in rapid amortization certificates issued since the close of the Korean war. This is a "hidden cost," says the Virginia senator, "which is not appropriated by Congress and which makes it more difficult to balance the Federal budget and to reduce the burden on taxpayers who are not receiving the benefit of the tax write-off."

Members of the small business committees manifest great interest in the General Motors survey showing that 64 per cent of its suppliers employ less than 100 persons. Eighty-nine per cent have fewer than 500 employees.

Senator George D. Aiken is pressing for a service like the extension service in the Department of Agriculture, which would provide small concerns with technical advice. Special banks to provide equity capital or guaranteed loans have been proposed for many years, but no such legislation has emerged.

After ten years' experience with its plant and equipment survey, the Commerce Department has letters and other evidence that this information is highly regarded as an eco-

it's Orange Core... the odorless gummed tape!

That's right! Orange Core, the *stand-out* standard gummed sealing tape *has no odor or scent.* Packers welcome it because the air in the shipping room stays fresh and clean. Customers value it because they know carton contents will not be affected by tape odor.

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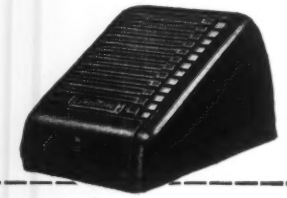

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nomic indicator. The surveys have not been 100 per cent accurate, but it is felt that they are as accurate as figures that deal with the future are likely to be.

Competition has increased in intensity to the point where it will force reductions in costs of distribution, Commerce Department officials believe. That is the area, they feel, which offers most promise for reductions. Increased appropriations for studies of distribution costs of manufactured products will be urged at this session of Congress.

A trained reserve of business executives more than 500 strong has been built up by the Business and Defense Services Administration. Each six months some 30 additional members are added to the "reserve." Recruits are borrowed from the industries which supply defense materials, and serve without compensation. During the six-month "training" period, they are familiarized with Government organization, procedures in procurement, and other phases of the defense program. In turn, the Government gets the benefit of their specialized knowledge.

These men are subject to recall in the event of an emergency in much the same manner as military reserves are called up. After the termination of their service in Washington, the reservists are called together periodically in regional meetings and brought up-to-date on the progress of various programs.

This session of Congress probably will give its blessing to barter with Iron Curtain countries. Pressure to that end is coming from agricultural interests.

Dire predictions of the effects on the economy of Western Europe of the closing of the Suez canal, it develops, were unjustified. The gross national product of Western European countries would be reduced by 50 per cent, some said. Estimates now place the probable reduction at only 5 per cent.

Paul Wooton

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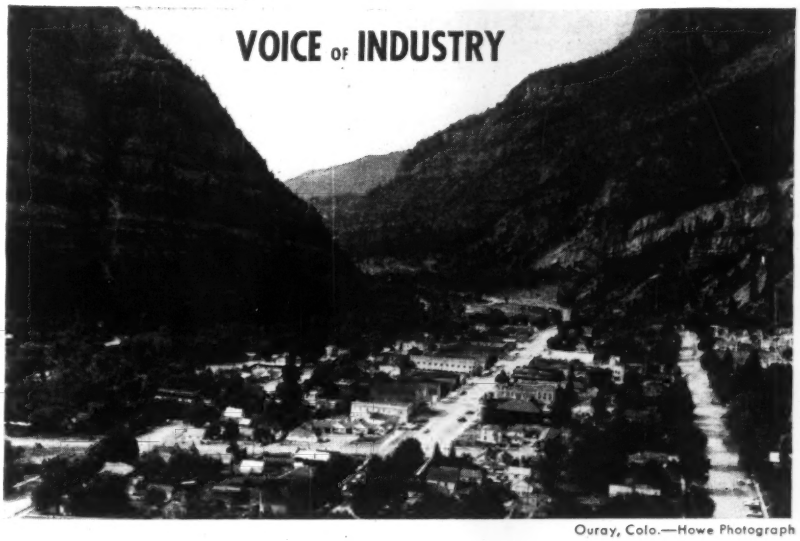

Ouray, Colo.—Howe Photograph

What are the management problems peculiar to a general prosperity, and how can these potential danger areas be made less vulnerable? Here is the second in a two-part series of answers from top management, as reported to Grover Amen.

MANAGEMENT PROBLEMS OF PROSPERITY—PART II

JUDSON S. SAYRE
President, Norge Division
Borg-Warner Corporation

There are many management problems peculiar to a time of general prosperity, and they arise essentially from an attitude of complacency and over-confidence. A specific example of this is the "easy-sell, sure-fire" sales approach summed up in the attitude: "You don't have to sell—just tell—and the customer will come and get it."

Because of the high level of our economy, business often takes the attitude that merely supplying existing demands is enough. This is the kind of thinking that could eventually leave our economic dream-boat stranded on the reefs. Economic progress is produced by creating new wants—not simply by supplying present ones. There is too much emphasis today on finding out what motivates the consumer to buy—not enough on what motivates the salesman to sell.

This sales problem is only one of many which suggest that, in the long run, management's greatest problem is management itself. This is why the need for creative thinking in business is becoming increasingly pronounced. The trouble is that good thinking doesn't grow on trees—nor do good thinkers. One of the troubles with our so-called business thinking is that we act as though there were no art of thinking to be learned from those who preached and practiced it in the past. For instance, there are six general rules for better thinking, formulated by the Greeks over 2,000 years ago:

1. Establish the best possible priority of problems.
2. State the problem exactly.
3. Separate emotional influences from the reasoning processes.
4. Find out whether more data are needed.
5. Observe a sequence of basic facts in handling the problems.
6. Estimate the loss-gain factor in

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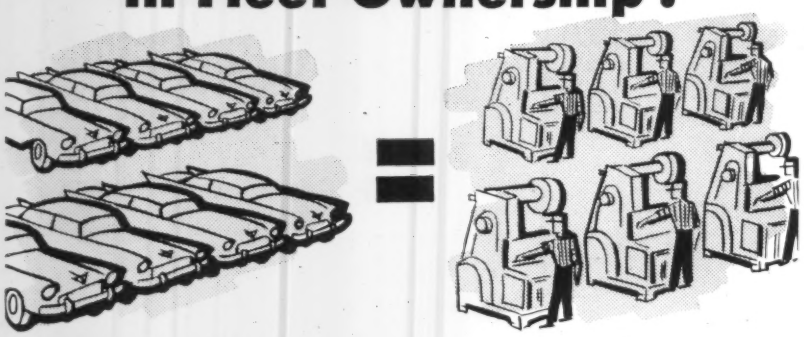
Why Tie-Up Working Capital in Fleet Ownership?



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each of all the probable solutions.

How many of us, consciously or unconsciously, apply such rules to our everyday business thinking?

FENTON B. TURCK
President
F. B. Turck and Company, Inc.

To many companies, today's high business level represents a "tub of butter." Business rolls in and profits are encouragingly increasing. In such a comfortable economic climate, there are bound to be areas of management that are being neglected because favorable times curtain the needs.

I believe one of the most important of these is market research, or more specifically, intellectually honest market research. Instead of asking "How's business?" I think we should ask, "How are your markets?"

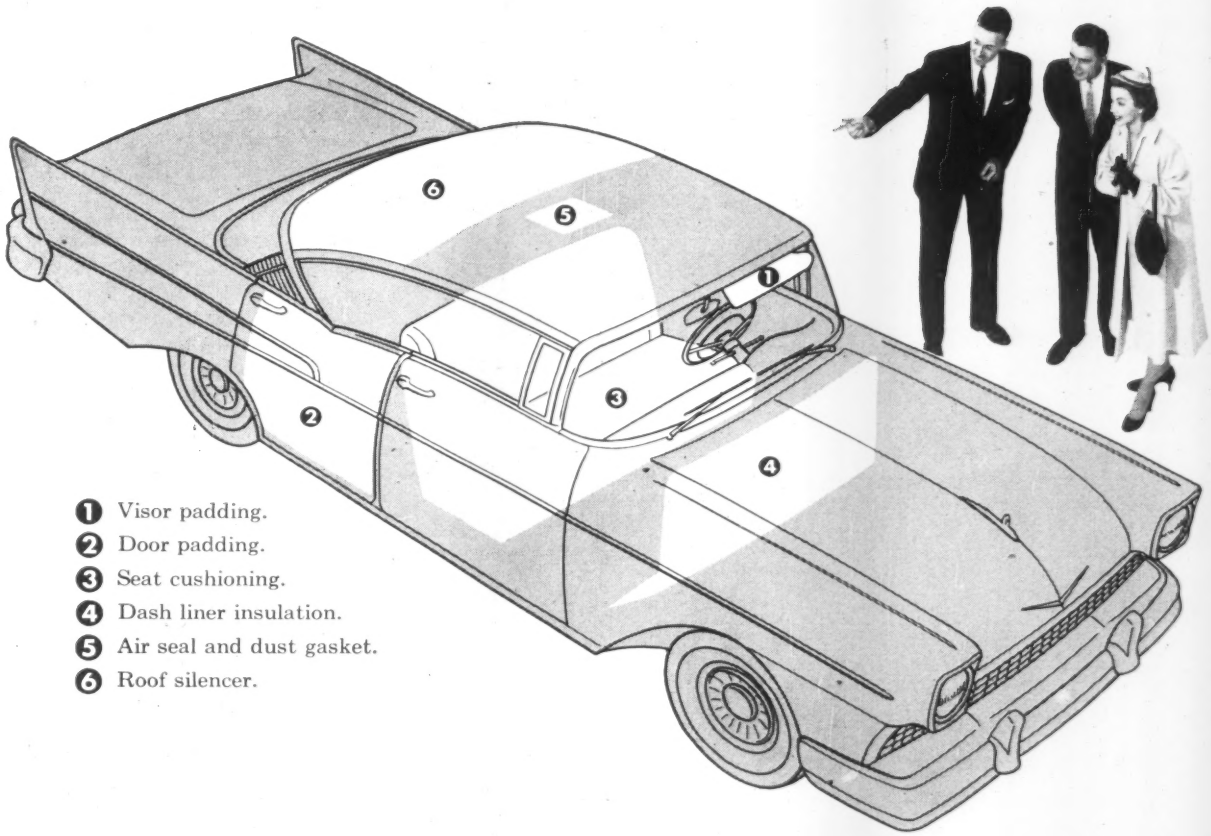
We are all aware that industrial and consumer habits and demands are changing month by month, but we may be answering "How are your markets?" by long-haired economic concepts. Do we really know what the changes mean to our own particular company?

Modern techniques employed in objective market surveys provide one answer, of course. When such surveys are capably conducted, the results are invaluable.

However, I believe there are two major roadblocks in this area. First, very few organizations exist that can provide the type of market survey indicated; and second, the cost of such surveys is often beyond the pocketbook of little companies. Let us hope that ways and means can soon be found to improve this situation.

PAUL DEAN ARNOLD
President
Arnold Bakers, Inc.

Most large corporations, in my judgment, are tending greatly to overuse their top management, and I am thinking particularly of the drain upon time and energies incident to an unreasonable amount



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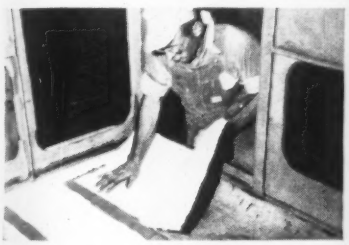
In the automotive industry, Tufflex meets engineered applications for thermal insulation, sound deadening and absorption, and as a soft, firm, cushioning material and padding. Because Tufflex combines these qualities in one product, it can offer more value with less cost. It does just that in applications such as dash liner insulation, roof silencer, luxurious door padding, and seat cushioning.

For many other industries, this amazing product, Tufflex, promises potential applications. It comes in a wide variety of types and thicknesses, including moisture-repellent or moisture-absorbing forms. Perhaps Tufflex can help you solve a production problem—while it adds quality to your product. Complete information and samples are yours for the asking. Wood Conversion Company, Dept. 239-27, First National Bank Building, St. Paul 1, Minn.



Here Tufflex sound and thermal insulation is being applied to the roof of a low-ground-pressure tractor cab. These tractors are used for construction work in the Arctic—Greenland—and were also sent on the recent Antarctic expedition.

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of travel. I base this comment upon observation of the schedules of members of our own board of directors. This calling upon top executives to do so much rushing about leads to a drastic waste. I am sure there is a strong connection between this sort of personal energy drain and the high incidence of both ulcers and heart trouble among American business executives. It might be healthier and less wasteful for American business if the urge for rapid geographic expansion could be brought into better balance with the development of adequate manpower, consistent with the humane utilization of time and energy.

CLIFFORD F. HOOD
President
United States Steel Corporation

Steel production currently is running at record-breaking levels, yet the steel companies, peculiarly, are in a financial dilemma. It is a dilemma born primarily of inflation. The decreasing value of the dollar has undermined the Federal tax depreciation laws to the point where they are seriously jeopardizing the efforts of heavy industry to replace worn-out equipment—to say nothing of financing expansion.

Although steel capacity has risen some 45 per cent since World War II, present production is not adequate to supply the needs of all manufacturers. This is a civilian demand, too, because less than 2 per cent of our steel output is going directly for military purposes.

But when a steel producer considers replacing a piece of equipment to maintain even his present capacity, he finds the purchase price has little relationship to the original cost of the unit to be replaced. For example an open hearth furnace now costs *six times* as much as it did in 1930. Unfortunately, the present tax laws allow for depreciation purposes only the original number of dollars spent.

The inability of industry to recover the current *value* of equipment as it wears out thus has become a confiscation of basic capital. As a result, the steel industry is not able to modernize and expand as fast as it should to meet the demands thrust upon it.

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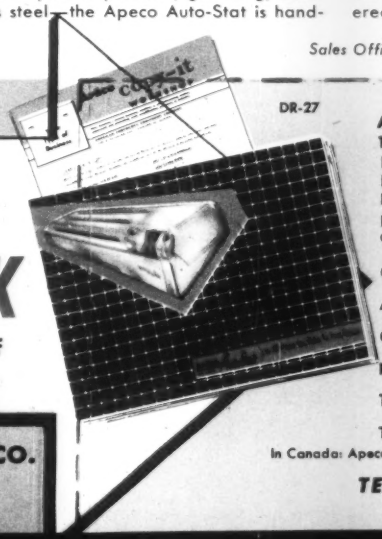

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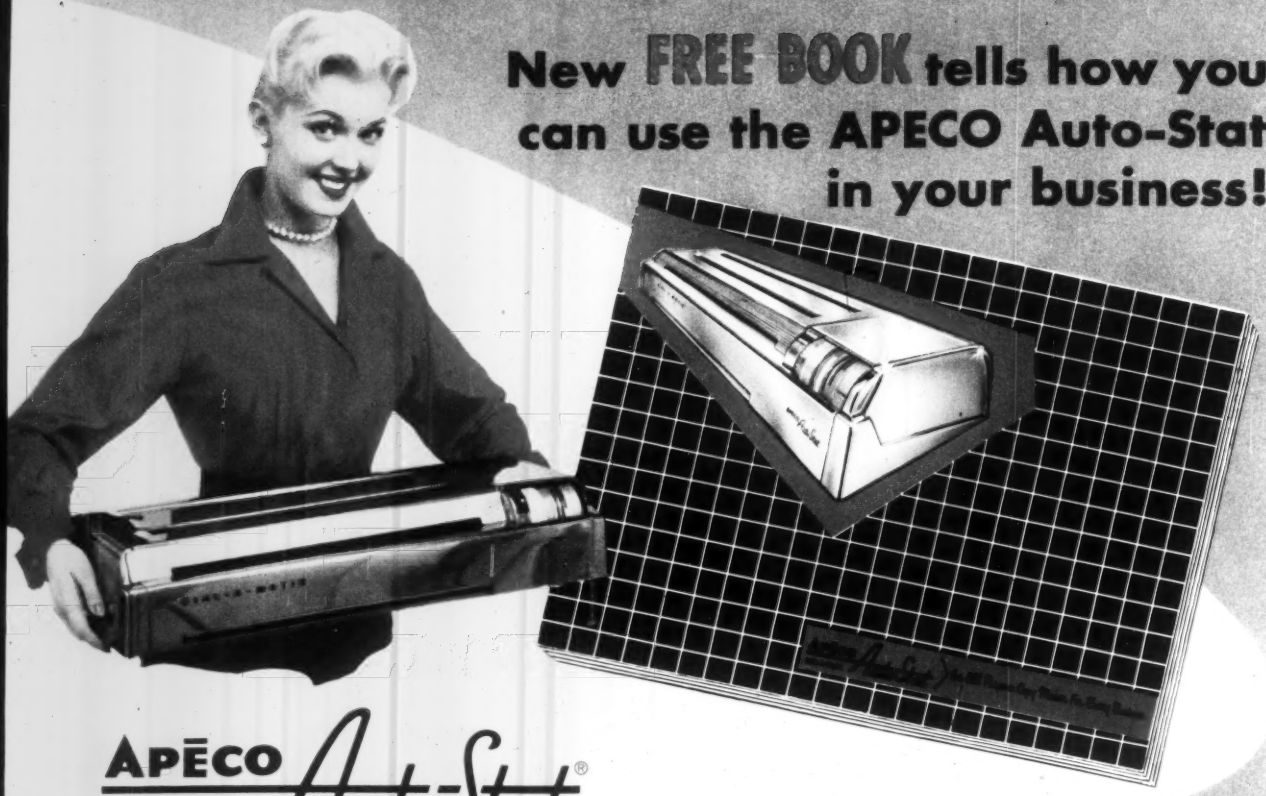

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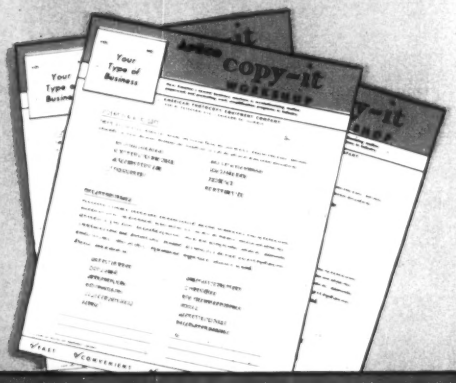

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HIGHLIGHTS *and sidelights*

comment by

Hanesta R. Gardner

More light on the future

Electroluminescent panels – the new diffused-light sources that promise greater flexibility and efficiency in design and application (see January, page 13)—are now being made and sold commercially for use on clocks, radios, and instruments, household thermometers, telephones, switch plates, signs and displays.

Sylvania Electric Products is making *panelescent* light sources by coating wafer-thin sheets of metal with phosphors and facing them with transparent sheeting (glass or plastic). The coated panels are activated by an alternating electric current, and give off a soft, glowing light in any one of several colors (green and blue are available now; and white and yellow soon will be).

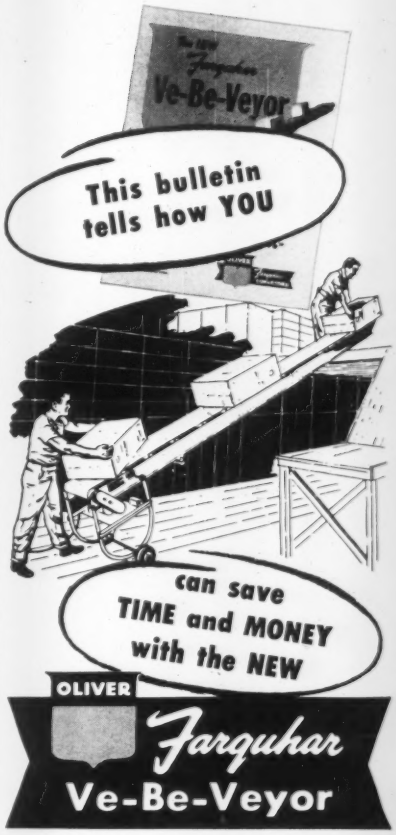
Compared to incandescent lamps, these light panels are not brilliant light sources. (The green panels, for example, provide about 0.2 footlamberts on 120-volt, 60-cycle current; two to five footlamberts at 600 volts. A 40-watt incandescent lamp has a brightness of 1,900 footlamberts.) However, as noted last month, higher-intensity electroluminescent panels are being developed for space lighting. Sylvania expects to have demonstration units of this type in the Monsanto "House of the Future" at Disneyland this Spring.

The other side of the fence

"Sometimes," said the electronics engineer, "I wish I worked for a com-

Plastics, plastics everywhere

Just about everything in this room is more attractive and more durable, U. S. Rubber Company says, because plastics were used in its construction. Floor, walls, furniture, and screens take advantage of a variety of synthetic resins and fibers. The screens, for instance, are made by embedding cedar wood curls in glass-reinforced *Vibrin* polyester panels, and the rear wall (behind the screen) is built of concrete blocks surfaced with glass-reinforced plastic—a brand new combination that can serve both as a structural material and as tiling. The table, too, is plastic-surfaced, chairs are covered with *Naugahyde* vinyl sheeting, and the floor is vinyl-tiled. The room itself is part of a display in U. S. Rubber's new Rockefeller Center Exhibit Hall, designed to show how U. S. R. materials—fibers and rubber as well as plastics—may be used.



WHETHER you operate a neighborhood store or a big industrial plant this new portable power belt conveyor will save time and work moving cartons, boxes, bags and other packaged items. Does double duty anywhere—loading and unloading trucks, moving merchandise in and out of storage or stock room, up and down stairs or onto shelves. Practical booster unit for gravity lines in factory or warehouse. "In-the-groove" design keeps belt always running straight.

LIGHT BUT POWERFUL—Carries more than its own weight. 12 ft. aluminum unit weighs only 149 lbs.; 16 ft., 192 lbs.; 20 ft., 235 lbs.

PLUGS INTO LIGHTING OUTLET—⅓ hp, 115 volt motor runs on lighting circuit.

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Lee R. Jackson

Lee R. Jackson, President, Firestone Tire & Rubber Co.

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"From such standpoints as tax rate, transportation facilities, climate, utility services, availability of experienced labor supply, geographical location and shipping costs, Iowa offered us definite advantages. In addition, we investigated such indirect factors as educational facilities, attitudes of the people, cooperation of the state's governments and other considerations. On all these counts, we were satisfied that Iowa would be an excellent location.

"As a result, we acquired land in Iowa and built a tire factory. Since then, the factory has been greatly expanded.

"In addition, we have located in Iowa the headquarters of our Western Sales Division, the headquarters of one of our sales districts, and a large number of independent dealers and stores."

The many advantages Iowa offered the Firestone Tire & Rubber Company are equally important for a wide variety of industries. Iowa's central location and excellent transportation facilities rank high as important assets. And the state's intelligent working force, its unhurried, contented way of life are unique advantages. If you have a move in mind, write the Iowa Development Commission for a list of available plants and plant sites plus a study of Iowa's labor force.

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pany that made salt cellars or paint brushes. It would be so easy to design a product like that."

But would it?

Here are a few of the specifications a salt cellar has to meet: It must be colorful, smooth, easy-to-clean, corrosion-resistant, and easy to handle. If possible, it should also be slip-proof, mar-resistant, heat-resistant, and impact-resistant. In addition, the dispensing device must resist clogging, yet not dispense too much salt at once.

Paint brushes, too, are more complex than they may seem to be. A paint brush must pick up enough paint—but not too much; and spread it out evenly. It should feel comfortable in the hand. Bristles, handle, and adhesives must resist paint solvents, yet the brush must be easy to clean.

To find out how best to design brushes with *Tynex* nylon bristles, Du Pont engineers had to build a special "painting machine." They tested more than 70 different brush designs before making their recommendations.

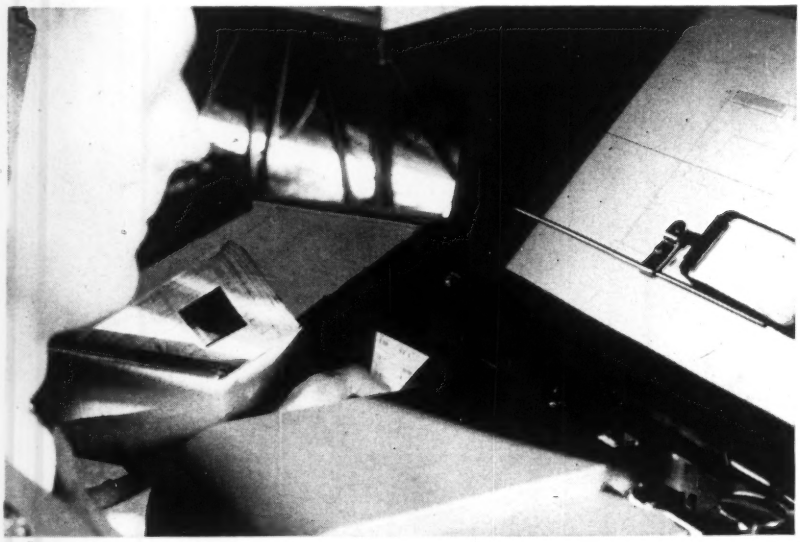
Little wheels, big problems

The wistful electronics engineer might take a look at automotive suppliers' problems. The low-slung chassis and smaller wheels on this year's autos, for instance, started a chain reaction of engineering problems. Smaller wheels mean more wear on tire surfaces, less space for mechanical components, and greater danger of heat build-up. So, tire treads, gears, and brakes are being redesigned, and new lubricants must be developed.

As C. M. Heinen of Chrysler Corporation's Materials Laboratories told a recent SAE meeting, there will be a demand for lubricants that can stand higher temperatures and are better able to prevent scoring and wear.

But it won't be enough just to formulate a better oil or grease. The new lubricant will have to be in the same price range as those now used, and it will have to be a compatible, easy to handle material that will not create new problems at the service station level.

Order speeder:



Half a million dollars a year, plus precious days and weeks in procurement of needed materials in time of national emergency . . . that's what the Army's Signal Corps expects to save with its new procurement paperwork system that combines microfilms of engineering drawings with punched cards giving essential ordering data. The films, 35mm positive prints produced with the aid of Recordak equipment, are mounted in previously prepared apertures in the cards by the special Filmsort machine shown here (guide lines on the screen help the operator to center each film in its aperture). A stack of the punched cards, ready for film insertion, can be seen at the operator's left. Advantages of the new system, the Signal Corps says, are: ease of handling, reduction in errors, reduction in time required to obtain duplicate prints.

Chemicals need redesign, too

The lubricant-makers' problem is just one of the chemical problems in the automotive field. Automotive anti-freeze compounds are another.

The profusion of anti-freezes, with their claims and counterclaims, testifies that there is still plenty of work to be done in this area. A review of the requirements explains why. Says the National Bureau of Standards, automotive anti-freeze should:

- Prevent freezing of the coolant at the lowest temperature to which the equipment will be exposed.
- Be chemically stable under all operating conditions.
- Have a high specific heat and heat conductivity to prevent large temperature gradients in the engine wall.

At the same time, anti-freeze compounds should *not:*

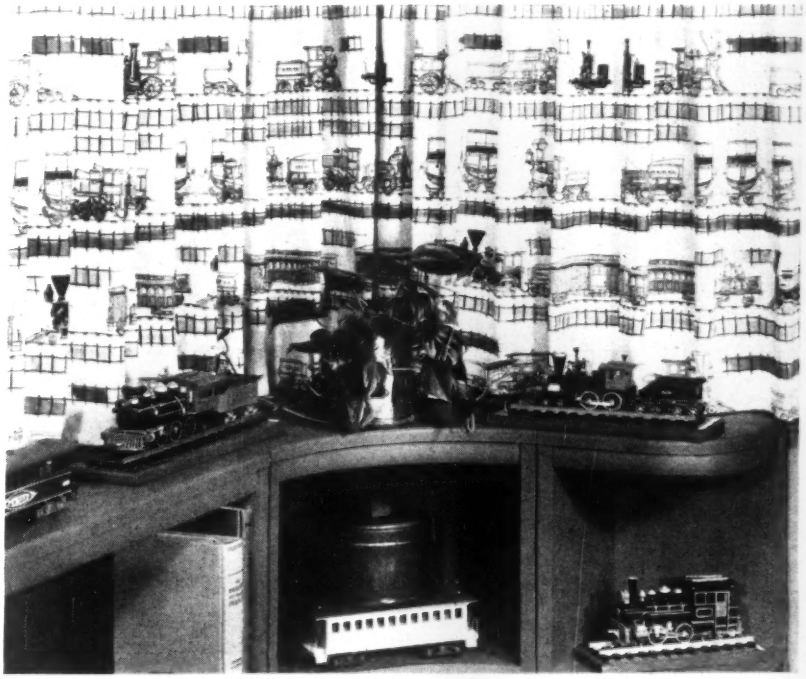
- Attack any of the materials used for the cooling system.
- Conduct electricity (lest galvanic corrosion set in or a residue result in ignition failure).
- Foam when small amounts of air leak into the system.
- Have so high a viscosity that they interfere with engine cooling.

In addition, it would be good, the Bureau notes, if the compound were so designed that it would not materially lower the boiling point of water, would not produce an unpleasant odor, would not be toxic or flammable, and would have a reasonably low coefficient of expansion (to reduce overflow losses).

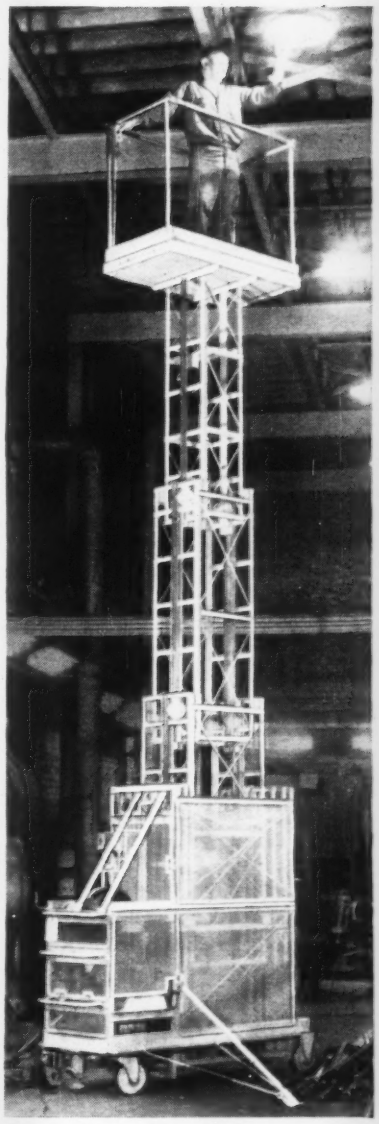
Small wonder that, as the Bureau puts it, "There are no practical substances satisfying all of these requirements." However, it reports, "the major requirements have been met satisfactorily by properly compounded solutions of the simple alcohols (methyl, ethyl, and isopropyl) and of ethylene glycol."

Still think your cross is heaviest?

They'll sell you



If you've got a good story, put it on cloth, and let others help you display it. Several companies have found that consumers are only too glad to get a new and attractive material that's based on company history or heraldry. Latest to take advantage of this fact is the Baltimore & Ohio railroad. Its museum pieces (note models on shelves) were used as the basis for this good looking Schumacher fabric that can be made into draperies, as it is here, or turned into dresses, tea towels, and similar items. The fabric, priced at about $3 a yard, is now being made available through decorators and department stores. Other companies that have had their histories put on cloth by Schumacher include Ford (old cars) and Steinway (pianos).



The man who feels safe works better on overhead maintenance

Safety is our first consideration in building Hi-Reach Telescopers.

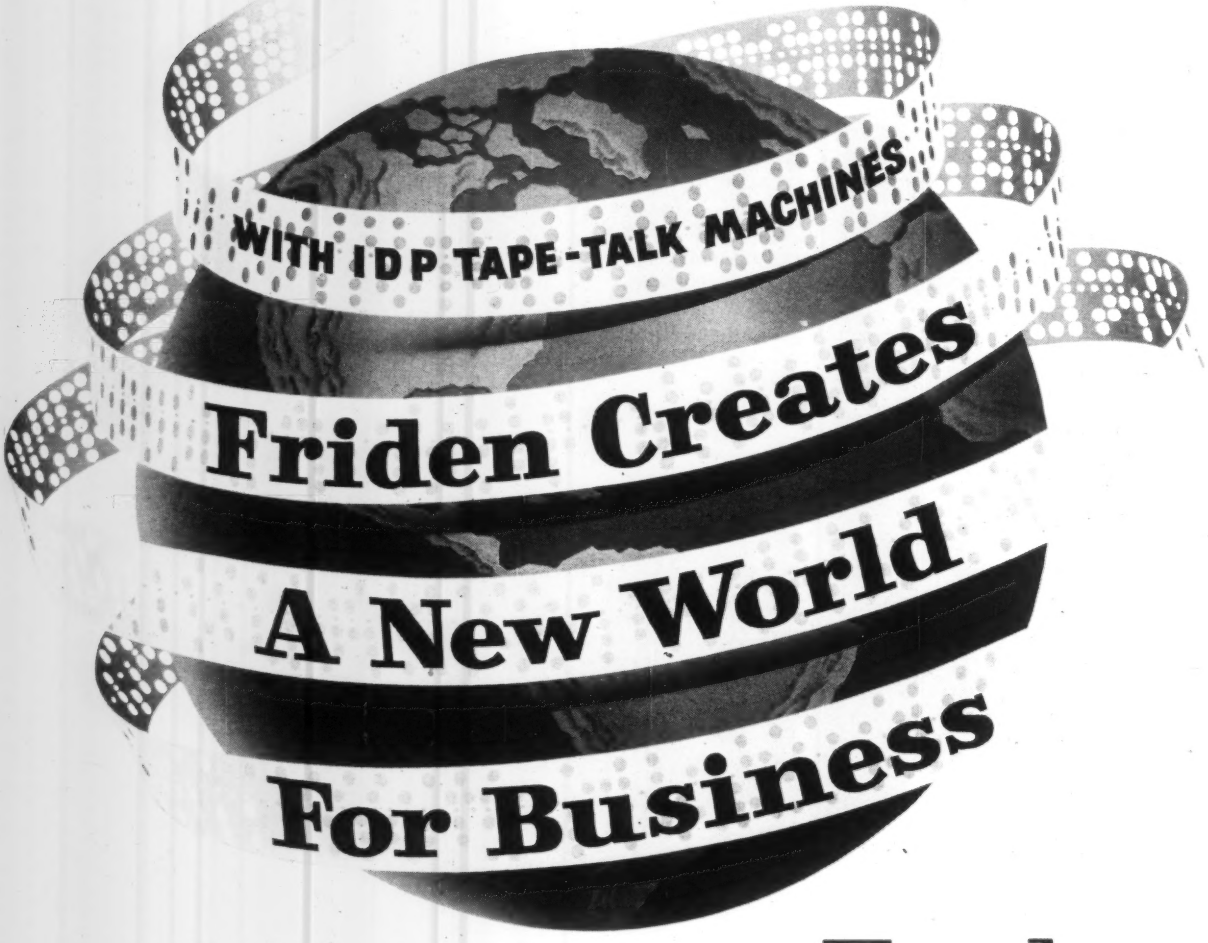
Model LB (illustrated), push-button control on platform. Four heights 20 ft. to 35 ft. (all models lower to clear doorway 6'-8" by 36"). Priced from $1510.00 up. Model PUL Hand Operated Lift — 15 ft. — $400.00. Custom-built lifters up to 100 ft.

Write for catalogue

Economy Engineering Co., 4516 W. Lake St., Chicago 24, Ill., 342 Madison Ave., New York 17, N. Y.

ECONOMY ENGINEERING

First the Automatic Calculator, The Thinking Machine of American Business... then the Natural Way 10-key Adding Machine... and now a dramatic new chapter in the fast moving **Friden Street Story**



HERE IS office *evolution* the Friden Street way—automatization that's practical (**and affordable**) right now, in *your* office. It's accomplished with IDP punched tape. Today even small and medium-size businesses are adopting this astonishing "no hands" technique. It simplifies complex routines. It eliminates human errors. It reduces time costs hugely. **IDP is Integrated Data Processing.** It is one automatic Friden office machine talking to another ... and another and another ... in a code language common to them all ... from data origination and interpretation to final filing. **Friden is the leader** in this evolutionary era of office efficiency because Friden creates the Tape-Talk machines that make possible the new automated systems. Installed one at a time or progressively, **each machine quickly pays for itself.**

Friden

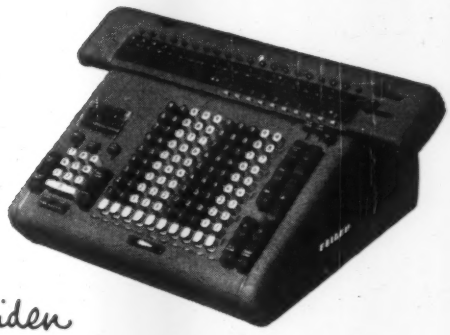
brings you an automatic office

COMMERCIAL CONTROLS CORPORATION

ROCHESTER, N.Y., SUBSIDIARY

Friden Add-Punch®

. . . is the 10-key adding and listing machine with tape punch mechanism. A key IDP unit, the Add-Punch "writes" punched tape while printing on adding machine tape. The punched tape can be interpreted by other similarly-equipped machines. Typical Add-Punch functions include recording of retail sales, sales audit, production and inventory control, and coding statistical data.



Friden fully automatic Calculator

. . . is the essential programmer in many IDP systems. Operating alone or in combination with other automatic machines, this famed Calculator performs more steps in figure-work without operator decisions than any other calculating machine ever developed.

FRIDEN TAPE-TALK machines described briefly here are representative of many more units which can be integrated for specialized data processing. Whatever *your* problem, ask Friden!

Typical job routines Friden Tape-Talk machines process *automatically* include: Invoices, sales orders, shipment manifests, inspection reports, time cards, package tags and tickets.

To see for yourself how Friden IDP works—beginning with the famed Friden Calculator and Adding Machine—call your nearby Friden agency or write FRIDEN CALCULATING MACHINE CO., INC., San Leandro, California . . . sales, instruction and service throughout the U. S. and world.

Friden Computyper®

. . . is an IDP machine combining automatic writing and automatic calculating. Equipped with automatic tape punch and reader, it interprets and records both alphabetical and numerical data. Produces tape enabling other machines to transfer data to punched cards or accounting records; or data may be sent by wire to other offices. The Friden Computyper is widely used to systemize billing, inventory, cost analysis, sales distribution, statistics, other typing-computing operations.

Friden® Flexowriter

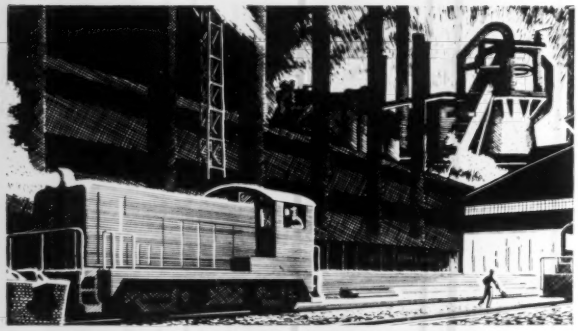
. . . enables even small and medium-size businesses to make their accounting automatic. Whatever is typed on a Flexowriter—an invoice, for example—is also reproduced on by-product punched tape. Tape can then be processed by other common language Tape-Talk machines at nearest IDP center. Flexowriter tape can also be used to actuate address plate embossing machines, tabulating card punches, computers, and the same or other Flexowriters.

Friden Natural Way Adding Machine

. . . has 10-key patented keyboard, Visible Check window for accuracy. Models available with or without automatic step-over of multiplicand. Specialized extensions and adaptations of the Friden Adding Machine actuate tape.

© Friden Calculating Machine Co., Inc.

This is National Steel

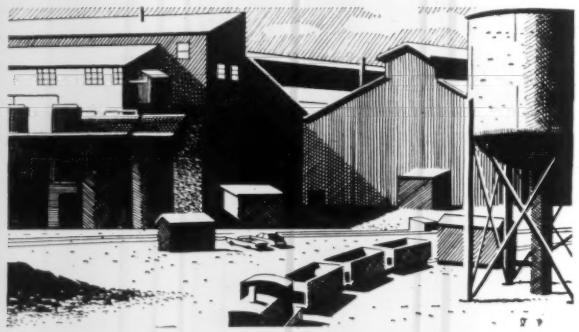


WEIRTON STEEL COMPANY

Weirton Steel Company, with mills at Weirton, W. Va., and Steubenville, Ohio is the leading independent source of tin plate for the canning industry, which makes more than 40 *billion* "tin" cans a year. Weirton's Weirzin and Weirkote zinc-coated steels are widely used in the heating and air conditioning industry, and in the manufacture of many corrosion-resistant commercial parts and products.

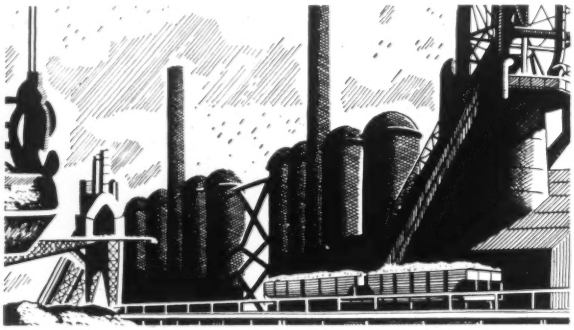
GREAT LAKES STEEL CORPORATION

Located at Detroit, Michigan, Great Lakes Steel is the major steel maker in this important industrial area. From completely integrated facilities—blast furnaces and coke ovens through finishing mills—Great Lakes Steel furnishes the automotive and other major industries with a wide range of standard and special steels, including the well-known high-strength, low-alloy N-A-X HIGH-TENSILE steel.



STRAN-STEEL CORPORATION

This steel-fabricating division, with plants at Ecorse, Michigan, and Terre Haute, Indiana, is a leading producer of steel architectural products and commercial and industrial steel buildings. The corporation is also the originator and sole source of N-S-F—Nailable Steel Flooring—for the railroad freight car manufacturing industry.



THE HANNA FURNACE CORPORATION

Its blast furnaces in Buffalo, New York, supply quality pig iron to foundries and other industries to which iron is essential in the manufacturing of a variety of products. Hanna's product range includes the Hanna 38-lb. pig and the 10-lb. HannaTen ingot—in all grades, in silvery, and in HannaTite, a special controlled close-grain pig iron.

NATIONAL STEEL

National Steel is a complete, self-contained steel producer. Its production starts in National Steel properties beneath the earth's surface. It ends with pig iron, finished steel and specialized steel products that the manufacturing divisions of National furnish U.S. and world industries.

Within its structure, National has every resource and facility for the production of finished steel. National mines and quarries yield its raw materials. National Steel boats, barges and trucks transport its materials and products. National Steel men and furnaces, mills and machines, melt . . . roll . . . finish . . . and distribute its steel through sales offices located in principal cities throughout the United States and representatives in 42 foreign countries.

As our population and economy continue to grow, National Steel continues to expand its facilities to help meet the ever-increasing demands for the world's great bargain metal—STEEL.

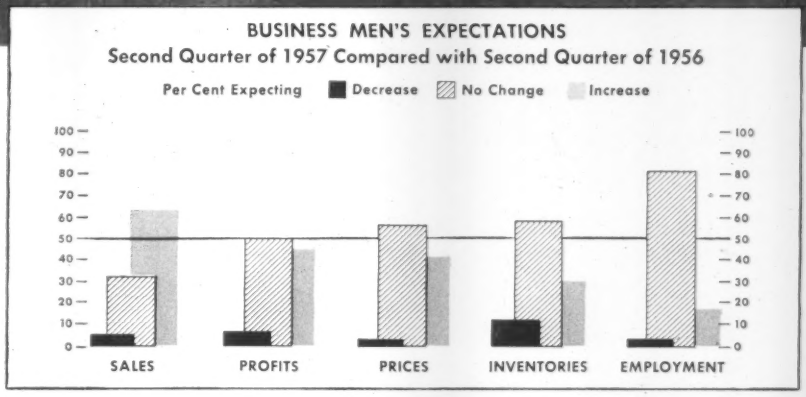
Weirzin, Weirkote, N-A-X HIGH-TENSILE, N-S-F, HannaTen and HannaTite are registered trademarks

NATIONAL STEEL CORPORATION

GRANT BUILDING, PITTSBURGH, PA.

OWNING AND OPERATING Weirton Steel Company • Great Lakes Steel Corporation • Stran-Steel Corporation
The Hanna Furnace Corporation • Hanna Iron Ore Division • National Mines Corporation • National Steel Products Company

BUSINESS MEN'S EXPECTATIONS SECOND QUARTER 1957



The 1,535 representative business executives interviewed recently by DUN & BRADSTREET *reporters expressed confidence in their companies' prospects for the second quarter of 1957. They expressed little doubt that business sales in the second quarter may top last year's $162 billion; and gains appeared likely for payrolls, profits, and prices.*

ALMOST two-thirds of the executives interviewed in DUN & BRADSTREET's latest survey of business men's expectations thought that their sales in the second quarter of 1957 would be higher than a year previously. That some of the gain would be in unit volume and not just the result of higher price levels was a prevalent opinion.

More executives expected increased sales and fewer a decrease in sales than in some previous surveys; the increase in optimism was noticeable among all except wholesalers.

The manufacturers of nondurable goods, of whom 69 per cent expected increased sales, were more optimistic than the business men in other lines. Retailers, as in previous surveys, foresaw increased volume less frequently than the others.

For every manufacturer who thought his company's net profits in the second quarter of 1957 might fall below the year-ago level, ten manufacturers expected an increase in profits. While the survey reflects that higher profits may be harder to obtain than higher sales, the proportion of executives expecting increased profits was larger than the proportion expecting lower profits in all of the industry groups.

While more than half of the business men were contemplating no change from a year ago in their second-quarter selling prices, those expecting an increase were almost fourteen times as numerous as those who expected to reduce their selling prices. The greatest price stability was foreseen among manufacturers of nondurable goods—69 per cent expected no change from a year ago.

Higher selling prices than last year were predicted most frequently by wholesalers. Wholesale prices at the time of this survey averaged about 4 per cent above a year ago.

The executives expecting that their inventories in the second quarter of 1957 would be larger than a year ago outnumbered those who expected smaller stocks. At the time of the survey, both manufacturers' and wholesalers' stocks were larger than at the end of the second quarter of 1956 (see Compass Points 27-29, page 28).

An increase over last year in the second-quarter level of employment seems likely, since executives planning to increase the number of people on their payrolls were more than five times as numerous as those who planned to reduce their staffs. Gains in employment were most likely in durable goods manufacturing, where 29 per cent of the executives expected to need additional help.

The proportion of manufacturers expecting an increase in orders was about the same in both durable and nondurable goods. Among those who expected a decline in orders, manufacturers of durable goods were somewhat more numerous.

THE SECOND QUARTER OUTLOOK

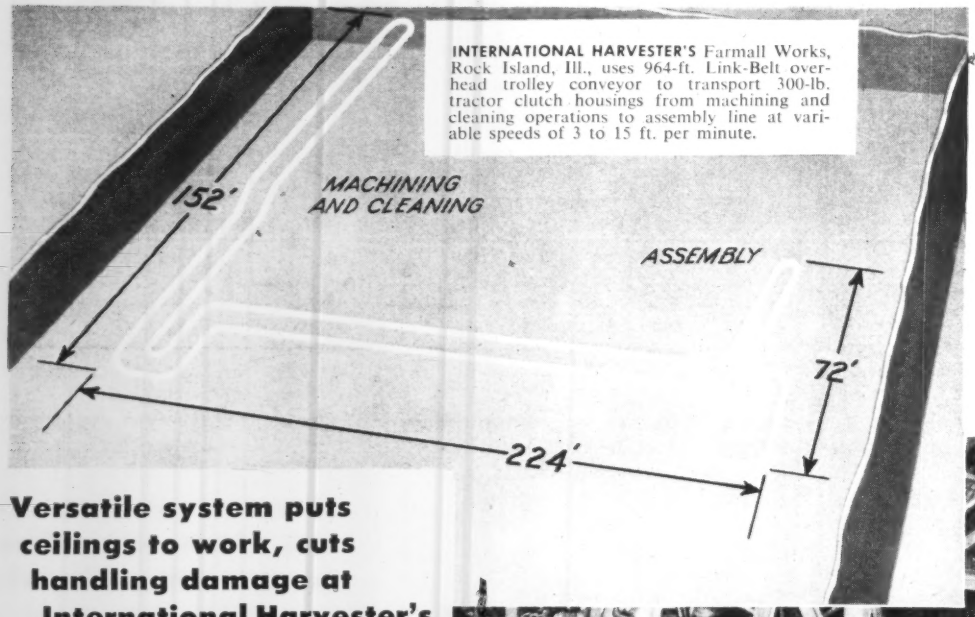
A COMPARISON OF 1956 WITH 1957

Percentage Breakdown of Opinions Expressed

	ALL CONCERNS			MANUFACTURERS			WHOLESALERS			RETAILERS		
	Increase	Unchanged	Decrease	Increase	Unchanged	Decrease	Increase	Unchanged	Decrease	Increase	Unchanged	Decrease
SALES	63	32	5	67	28	5	60	35	5	55	39	6
PROFITS	44	50	6	50	45	5	38	55	7	38	57	5
PRICES	41	56	3	36	62	2	51	46	3	36	60	4
INVENTORIES	30	58	12	34	54	12	28	62	10	22	64	14
EMPLOYMENT	16	81	3	22	75	3	10	87	3	8	88	4
NEW ORDERS	..	..	..	57	39	4	..	..	..	..	..	..

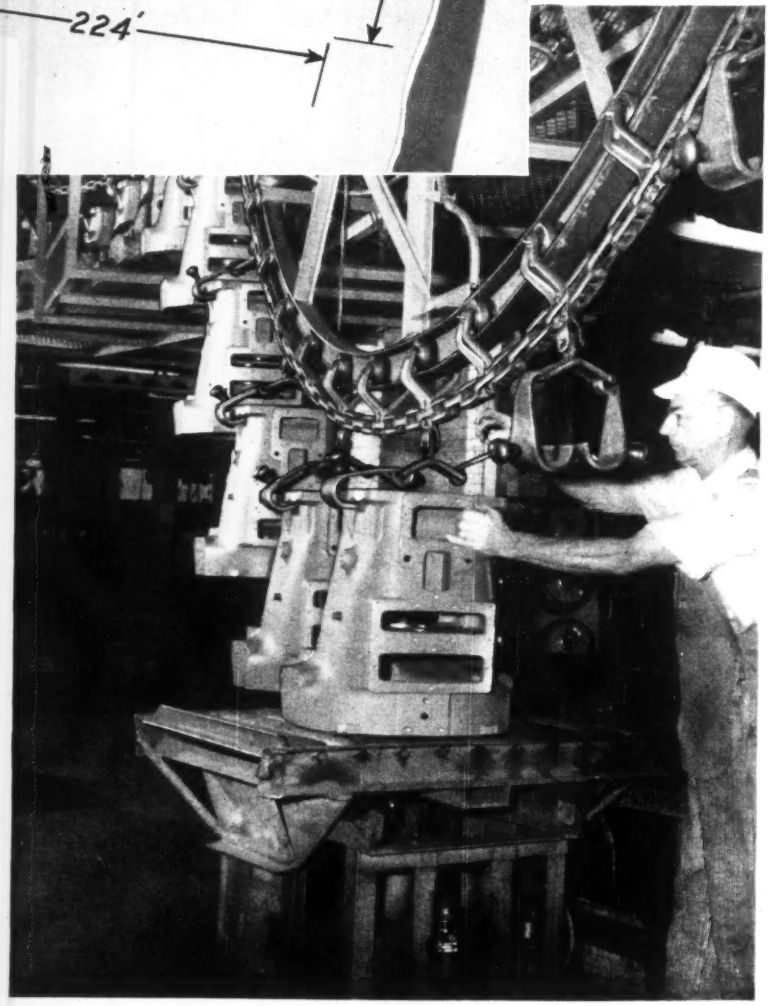
LINK-BELT Overhead Trolley Conveyor

unites separated machining and assembly into 1 continuous production line



INTERNATIONAL HARVESTER'S Farmall Works, Rock Island, Ill., uses 964-ft. Link-Belt overhead trolley conveyor to transport 300-lb. tractor clutch housings from machining and cleaning operations to assembly line at variable speeds of 3 to 15 ft. per minute.

FAST DISENGAGEMENT of heavy housings (below) is made possible with easy-to-operate hooks. Link-Belt offers a complete line of attachments, hooks and carriers for quick, safe loading and unloading of any article.



Versatile system puts ceilings to work, cuts handling damage at International Harvester's Farmall Works

THE amazing flexibility of Link-Belt overhead trolley conveyors is clearly demonstrated at International Harvester's Farmall Works. Multi-plane travel permits straight-line production from distant, finish machining and cleaning operations to assembly line. Irregular path of conveyor provides extra length for storage of finished parts . . . saves floor space . . . relieves working area congestion . . . reduces loss and damage from excessive handling.

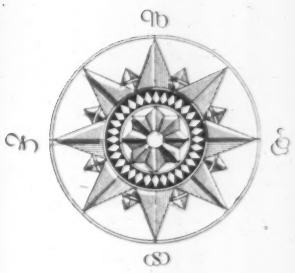
If your plant can profit by straight-line production, call the Link-Belt office near you. Whether your handling involves one building or several . . . single or multi-floor—you'll learn how Link-Belt overhead trolley conveyors can cut your handling costs. 14.265

LINK-BELT

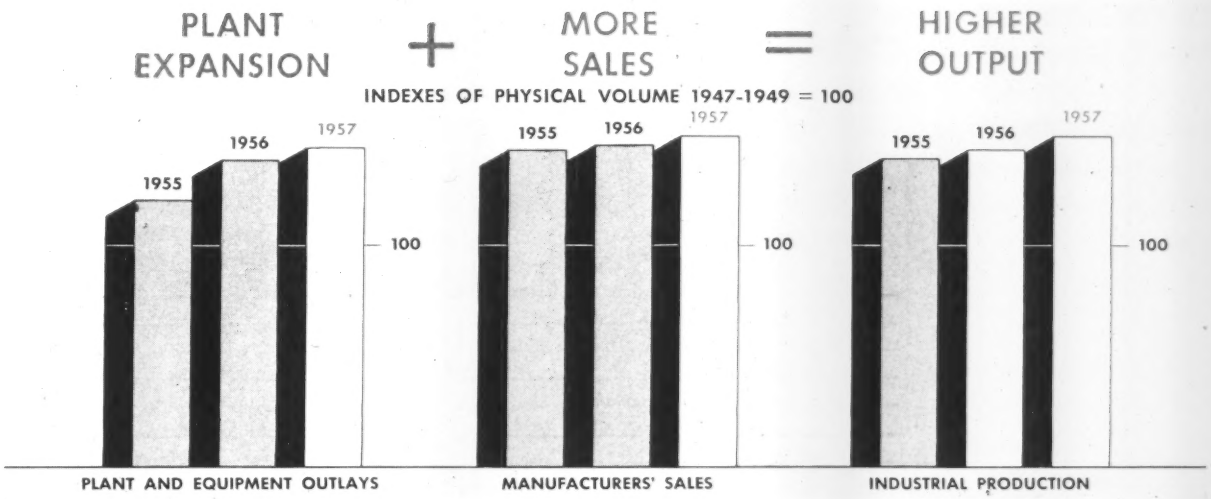
OVERHEAD TROLLEY CONVEYORS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.

THE TREND OF BUSINESS



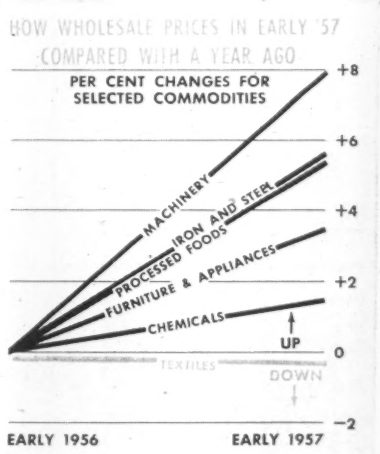
COMPASS POINTS ON PAGES 28 AND 29



NOT HESITATING with the addition of $35 billion worth of new plant and equipment in 1956, business may spend $38 or $39 billion in 1957 to expand and improve its productive facilities. Even after allowance for changes in the purchasing power of these capacity-buying dollars, such a level of spending means a record enlargement of the physical ability to produce. For a comparison with past years, take a look at Compass Point 19 on page 29.

Sales in 1957 are expected to increase to the extent that production in many lines of manufacturing will be as high as it can go with present facilities, and new additions to capacity will be welcome. This is particularly true of steel, where orders for almost all kinds of products are of such record proportions that peak steel output is assured for at least the first half of 1957.

Booming activity is expected in the machinery, construction, ship-building, and freight car manufacturing industries, according to a recent survey by the Department of Commerce. Automobile sales are expected to rise about 10 per cent from 1956 in unit volume, perhaps more in dollar volume if the higher prices for the 1957 models are maintained. Sales of consumer durable goods are expected to rise slightly. A jump of 15 per cent in sales of oil field equipment and machinery is expected because of rising needs for oil both in domestic markets and abroad.



Sprightly gains of more than 10 per cent are in sight for the sales of business machines, 3 per cent for chemicals. Depending on the availability of steel, the sales of mining equipment and machinery may increase slightly in the first half of the year. Unfilled orders for aircraft at the start of 1957 were at the highest level since World War II, one-third larger than a year ago.

Contrasting with the expansion scheduled for so many of these lines, the sales of lumber are expected to remain weak because of the anticipated decline in housing starts. But it is noteworthy that furniture manufacturers expect their sales to remain at record levels, notwithstanding the slide in home building.

With the exception of woolens and worsteds, where production has already been adjusted to current sales, textile output is expected to lag. A predicted drop of 3 per cent in truck production contrasts with the planned rise for cars. Some of the increase in the dollar volume of sales will result

39 COMPASS POINTS OF BUSINESS . . . .

CENSUS

1957, 48 million households; 1967, 66 million

	1 POPULATION *Millions*	2 NAMES IN REFERENCE BOOK *Thousands*
'56 IV	169.2	2,650
'56 III	168.4	2,647
'56 II	167.6	2,639
'56 I	167.0	2,643
1956	168.1	2,645
1955	165.2	2,640
1954	162.4	2,639
1953	159.7	2,673
1952	157.0	2,643
1951	154.4	2,614
1950	151.7	2,692
1949	149.2	2,684
1948	146.6	2,555
1947	144.4	2,410
1946	141.3	2,146
1939	130.9	2,116
1932	124.8	2,077
1929	121.8	2,213
1919	105.1	1,711
1914	99.1	1,655

EMPLOYMENT

A few more jobless for 1957, but unemployment still at less than 5 per cent of the labor force

	3 EMPLOYMENT Civilian *Millions*	4 EMPLOYMENT Agricultural *Millions*	5 EMPLOYMENT Nonagricultural *Millions*	6 UNEMPLOYMENT *Millions*
'56 IV	65.4	6.2	59.2	2.1
'56 III	66.5	7.5	59.1	2.3
'56 II	65.2	7.1	58.1	2.7
'56 I	62.9	5.6	57.3	2.9
1956	65.0	6.6	58.4	2.5
1955	63.2	6.7	56.5	2.6
1954	61.2	6.5	54.7	3.2
1953	61.9	6.5	55.4	1.5
1952	61.3	6.8	54.5	1.7
1951	61.0	7.1	54.0	1.9
1950	60.0	7.5	52.5	3.1
1949	58.7	8.0	50.7	3.4
1948	59.4	8.0	51.4	2.1
1947	58.0	8.3	49.8	2.1
1946	55.2	8.3	46.9	2.3
1939	45.8	9.3	35.6	9.5
1932	38.9	9.7	28.0	12.1
1929	47.6	10.0	36.3	1.5
1919	42.0	10.5	31.5	....
1914	37.6	11.4	26.2	....

PRICES

Because of stiff competition, retail markups did not fully reflect higher wholesale costs

	7 CONSUMERS' PRICES 1947–1949 = 100 *Index*	8 RETAIL PRICES 1935–1939 = 100 *Index*	9 WHOLESALE PRICES 1947–1949 = 100 *Index*	10 INDUSTRIAL STOCK PRICE AVERAGES *Dollars*
'56 IV	117.8	213.5	115.9	493.01
'56 III	117.0	213.1	114.7	505.49
'56 II	115.5	210.2	114.1	497.19
'56 I	114.6	207.8	112.4	484.31
1956	116.2	211.1	114.3	485.05
1955	114.5	208.0	110.7	442.70
1954	114.8	208.6	110.2	333.91
1953	114.4	209.1	110.1	275.96
1952	113.5	210.4	111.6	270.76
1951	111.0	206.8	114.8	257.64
1950	102.8	189.0	103.1	216.31
1949	101.8	187.7	99.2	179.48
1948	102.8	192.7	104.4	179.95
1947	95.5	180.1	96.4	177.58
1946	83.4	155.2	78.7	191.65
1939	59.4	99.0	50.1	142.66
1932	58.4	.....	42.8	64.57
1929	73.3	120.9	61.9	311.24
1919	74.0	.....	88.1	99.78
1914	42.9	.....	43.3	81.03

SALES

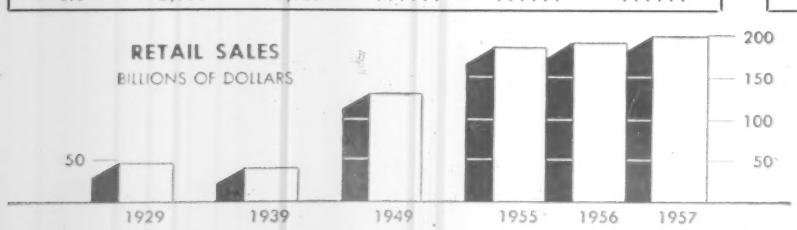
Business sales well beyond the half-trillion mark, further gains in both domestic and foreign trade in sight for 1957

	21 FARM RECEIPTS *Billion $*	22 EXPORTS *Million $*	23 IMPORTS *Million $*	24 RETAIL SALES *Million $*	25 WHOLESALE SALES *Million $*	26 MANUFACTURING SALES *Million $*
'55 IV	**11.5**	**4,771**	**3,053**	**52,800**	**34,100**	**79,900**
'55 III	8.2	4,648	3,092	47,591	31,610	79,696
'55 II	6.0	4,897	3,112	48,010	31,050	82,927
'55 I	6.3	4,217	3,221	43,416	29,140	81,404
1956	31.9	18,533	12,484	191,817	125,890	323,927
1955	29.5	15,510	11,390	185,480	117,620	316,986
1954	30.0	15,059	10,205	170,664	109,291	287,707
1953	31.4	15,698	10,875	170,742	111,990	303,356
1952	32.8	15,177	10,714	164,085	112,325	276,548
1951	33.2	15,030	10,967	158,223	113,168	266,460
1950	28.7	10,275	8,852	143,689†	103,896	231,415
1949	28.1	12,051	6,622	130,721	88,252	196,997
1948	30.5	12,653	7,124	130,521	95,172	211,560
1947	30.0	14,430	5,756	119,604	87,263	191,010
1946	25.5	9,738	2,942	102,488	71,915	151,402
1939	8.6	3,177	2,318	41,042	26,244†	61,340
1932	4.7	1,611	1,323	25,013	.....	30,774
1929	11.3	5,241	4,399	48,459	37,814	70,262
1919	14.5	7,920	3,904	36,549	.....	60,509
1914	6.0	2,114	1,789	.....	.....	.....

INVENTORIES

Rate of rise in manufacturers' stocks was about the same as in unfilled orders.

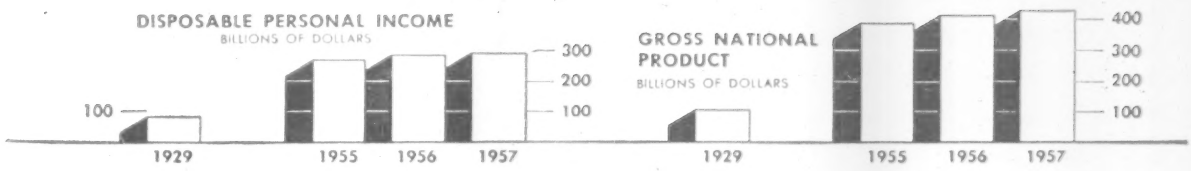
	27 RETAIL INVENTORIES *Million $*	28 WHOLESALE INVENTORIES *Million $*	29 MANUFACTURING INVENTORIES *Million $*
'55 IV	**23,600**	**13,600**	**51,000**
'55 III	23,530	12,857	49,324
'55 II	23,510	12,370	49,295
'55 I	24,540	12,620	47,674
1956	23,600	13,600	51,000
1955	22,440	12,290	46,085
1954	22,090	11,562	44,017
1953	21,208	11,695	46,947
1952	20,234	11,310	44,442
1951	19,904	11,068	43,123
1950	18,699§	10,474	34,534§
1949	14,570	7,913§	29,038
1948	15,190	7,982	31,782
1947	13,372	7,613	29,032
1946	11,231	6,606	24,620
1939	5,285	3,075†	11,516
1932	.....	2,307	7,332
1929	7,298	4,024	12,775
1919	.....	.....	12,096
1914	.....	.....	.....



Footnotes

†Figures for this and prior dates are from another source and are not strictly comparable with later data.

‡Beginning in 1937 tax refunds are deducted from receipts and are not included among the expenditures.



INCOME

High incomes in '57 may support consumer spending of about $280 billion, 5 per cent more than in '56

11 WEEKLY HOURS Indus. Workers *Hours*	12 WEEKLY EARNINGS Indus. Workers *Dollars*	13 DISPOSABLE PERSONAL INCOME *Billion $*	14 DISPOSABLE INCOME Per Capita *1956 Dollars*	15 CORPORATE PROFITS AFTER TAXES *Billion $*	
40.8	**82.89**	**293.2•**	**1,706**	**22.8**	
40.0	80.06	288.2•	1,696•	20.4•	IV
40.2	79.06	284.9•	1,707•	21.3•	III '56
40.5	78.50	280.2•	1,699•	21.6•	II
					I
40.5	80.13	288.6	1,705	21.5	1956
40.7	76.61	270.6	1,660	21.1	1955
39.7	71.65	254.4	1,583	16.4	1954
40.5	71.69	250.2	1,592	16.7	1953
40.7	67.97	236.7	1,546	16.1	1952
40.7	64.77	226.1	1,532	18.7	1951
40.5	59.33	206.1	1,536	22.1	1950
39.2	54.92	188.2	1,438	15.8	1949
40.1	54.14	187.6	1,445	20.3	1948
40.4	49.97	169.0	1,425	18.2	1947
40.4	43.82	159.2	1,568	13.4	1946
37.7	23.86	70.4	1,053	5.0	1939
38.3	17.05†	48.7	776	−3.4	1932
44.2	25.03	83.1§	1,081§	8.3§	1929
46.3	22.08	63.5	949	5.7	1919
49.4	11.01	33.2	908	1.9	1914

PRODUCTION

Gross national product is expected to rise steadily this year, may hit a rate of $440 billion in the fourth quarter of 1957

16 INDUSTRIAL PRODUCTION (PHYSICAL) *Index*	17 ELECTRIC POWER PRODUCTION *Billions kwh*	18 BUILDING PERMITS 120 Cities *Million $*	19 EXPENDITURES FOR PLANT & EQUIPMENT *Billion $*	20 GROSS NATIONAL PRODUCT *Billion $*	
147*	**176.1**	**1,094**	**9.4**	**424.0•**	IV
141*	169.5	1,379	8.9	413.8•	III '56
142*	166.6	1,296	8.9	408.3•	II
142*	170.1	1,057	7.5	403.4•	I
143	682.3	4,826	34.7	412.4•	1956
139	624.8	4,571	28.7	390.9	1955
125	544.6	4,143	26.8	360.7	1954
134	516.5	4,034	28.3	363.2	1953
124	463.1	3,523	26.5	345.2	1952
120	432.3	3,654	25.6	328.2	1951
112	388.7	4,466	20.6	285.1	1950
97	345.6	3,131	19.3	257.3	1949
104	336.8	3,111	22.1	257.3	1948
100	307.4	2,470	20.6	232.2	1947
90	269.6	2,089	14.8	209.2	1946
58	161.3	1,029	5.5	91.1	1939
31	99.4	336	2.6	58.5	1932
59	116.7	2,490	9.2	104.4§	1929
39	.....	1,181	....	77.9	1919
33	.....	735	....	38.5	1914

FEDERAL

Increase is scheduled in defense spending

30 FEDERAL RECEIPTS *Million $*	31 FEDERAL SPENDING *Million $*	32 GROSS FEDERAL DEBT *Billion $*	
14,865	17,721	267.7	IV
16,783	16,362	274.3	III '56
25,267	17,791	272.8	II
24,572	15,623	276.3	I
68,165	66,540	276.7	1956
60,390	64,750	280.8	1955
64,655	67,772	271.3	1954
64,825	74,274	266.1	1953
61,393	65,400	259.1	1952
47,568	44,058	255.2	1951
36,495	39,617	257.4	1950
37,696	39,507	252.8	1949
41,488	33,069	252.3	1948
39,787	39,033	258.3	1947
39,772	64,448	269.4	1946
4,996‡	8,858‡	40.4	1939
1,924	4,659	19.5	1932
3,861	3,127	16.9	1929
5,085	18,448	25.5	1919
735	735	1.2	1914

FINANCE

Interest rates on business loans advanced steadily, but still were below the highs in 1919 and 1929

33 CONSUMER CREDIT Outstanding *Billion $*	34 LOANS OF COMMERCIAL BANKS *Billion $*	35 CURRENCY OUTSIDE OF BANKS *Million $*	36 DEMAND DEPOSITS ADJUSTED *Million $*	37 INTEREST ON BUSINESS LOANS *Per cent*	
42.0	90.6	28,500	111,100	4.40	IV
40.1	88.5	27,400	105,400	4.35	III '56
39.5	86.9	28,300	104,700	4.14	II
37.8	84.7	27,200	104,400	3.93	I
42.0	90.6	28,500	111,100	4.40	1956
38.6	82.6	27,900	109,900	3.93	1955
32.3	70.6	27,400	106,600	3.55	1954
31.2	67.6	28,091	102,500	3.69	1953
27.4	64.2	27,494	101,500	3.50	1952
22.6	57.7	26,315	98,234	3.10	1951
21.4	52.2	25,398	92,272	2.70	1950
17.3	43.0	25,415	85,570	2.70	1949
14.4	42.5	26,079	85,520	2.50	1948
11.6	38.1	26,476	87,121	2.10	1947
8.4	31.1	26,730	83,314	2.10	1946
7.2	17.2	6,401	29,793	2.10	1939
3.6	21.8	4,669	15,728	4.71	1932
6.4	35.7	3,557	22,809	5.83	1929
....	22.4	3,593	17,624	6.58	1919
....	13.2	1,533	10,082	....	1914

FAILURES

Toll rose among smaller businesses

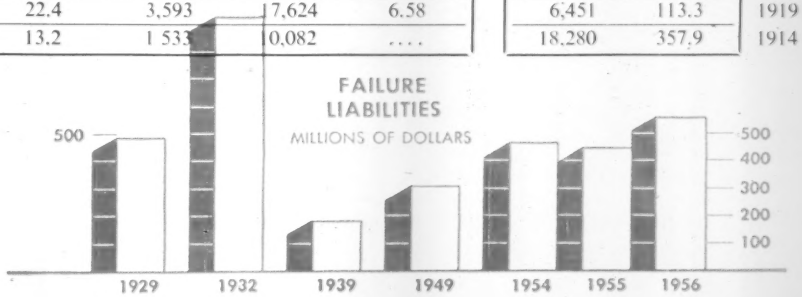
38 BUSINESS FAILURES *Number*	39 LIABILITIES OF FAILURE *Million $*	
3,139	140.7	IV
3,051	143.0	III '56
3,254	144.8	II
3,242	134.7	I
12,686	562.9	1956
10,969	449.3	1955
11,086	462.6	1954
8,862	394.2	1953
7,611	283.3	1952
8,058	259.4	1951
9,162	248.3	1950
9,246	308.1	1949
3,252	234.6	1948
3,476	204.6	1947
1,130	67.3	1946
14,768	182.5	1939
31,822	928.3	1932
22,909	483.3	1929
6,451	113.3	1919
18,280	357.9	1914

•Annual rate seasonally adjusted.

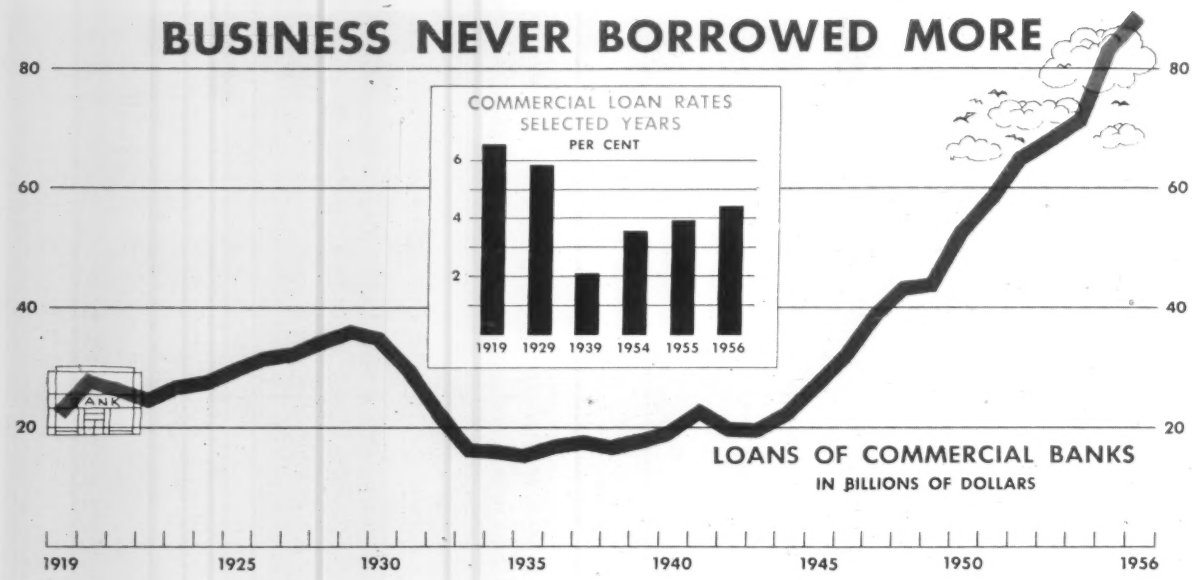
*Quarterly figures seasonally adjusted.

§Series revised from this date.

Fourth quarter figures for most series are based upon preliminary estimates and incomplete data.



FEBRUARY 1957



from price increases. Prices at the beginning of 1957 were slightly above the year-ago levels. (See the small chart, page 27, and Compass Point 9.)

Expansion rate stabilizing

While it is extraordinarily high, there are signs that spending for new plant and equipment may be drifting along a plateau. Rising interest rates and higher construction costs probably convinced some business men that 1957 may be an expensive year to undertake new obligations. Manufacturers plan to spend about the same amount of money for new facilities in the first quarter of 1957 as they did in the fourth quarter of 1956, although this is still about 20 per cent more than a year ago.

As a proportion of the total output of goods and services (Compass Point 20), the volume of expenditures for new plant and equipment has risen somewhat in the last year or so. For every $100 worth of goods and services produced in 1957, roughly $9 will be spent for new plant and equipment. This compares with $9.10 in 1956, an average of $7.60 for 1950-1955 and $7.10 in prewar 1939.

Furthermore, capital expenditures for each employed worker in 1956 were about one-third larger than the average for the years 1950–1955. Most of this increase represents a gain in the physical volume of plant and equipment added per worker; the prices for new facilities in 1956 were about 13 per cent higher than the average for the years 1950–1955.

So long as the nation remains hungry for more and better goods and services, high-level capital expenditures will be required. With employment sustained at 95 per cent or more of the labor force, as it has been for the past six years, there is little or no reserve supply of efficient manpower. Both competition and progress in bettering our living standards demand the use of up-to-date equipment and production techniques. In spite of the increase in productive facilities in 1956, productivity increased but 2.5 per cent, something less than the historical average of 3 per cent.

More saving needed

But the hunger for a better way of life cannot be satisfied without some sacrifices. Population growth alone does not insure prosperity, as we have so often been urged to believe. The hordes in China and India are more often cold and hungry than not. Even the added qualification that our income levels are increasing along with the growth in population is not necessarily a healthy sign. Too high a rate of personal spending for consumption, without adequate attention to savings, can retard our progress.

A rapid increase in the buying of food, clothing, housing, and so on, without just as rapid an increase in the supply of these things, pushes prices up. The worker must then either work more hours to get what he wants, or get an increase in pay, adding to production costs. The lure of high prices, with the implication of bigger profits, may encourage a business man to increase production —but first it takes capital to buy the necessary factories, materials, and equipment, and the capital must come from savings.

Had savings been larger and consumption smaller in past years, we might not have suffered the rapid increase in prices, or contracted the present large volume of debt. But it is doubtful that employment could have been sustained at such extraordinarily high levels if thrift were too widely practiced. At just what level spending becomes "too high" or "too low" cannot be precisely determined. The ideal is a balance between spending and saving wherein prices are kept high enough to encourage enterprise and savings are adequate to finance the necessary capital expansion.

Loans at peak

To restrain borrowing and encourage saving, the Federal Reserve Board last year raised the interest rates on business loans and, in joint action with the Federal Deposit Insurance Corporation, lifted the top limit of interest that the commercial banks may pay on savings deposits.

Loans to business by commercial banks in 1956 jumped to an all-time peak. While interest rates rose, too,

COMPLETE *Finishing* SYSTEMS

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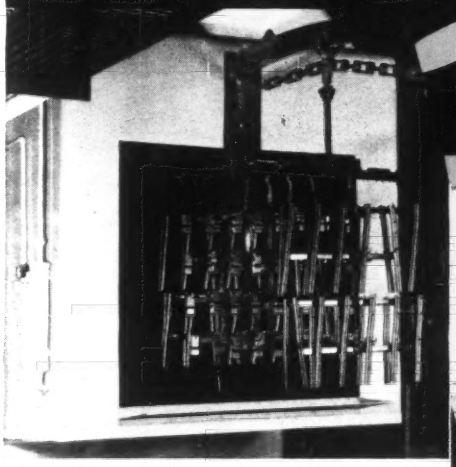
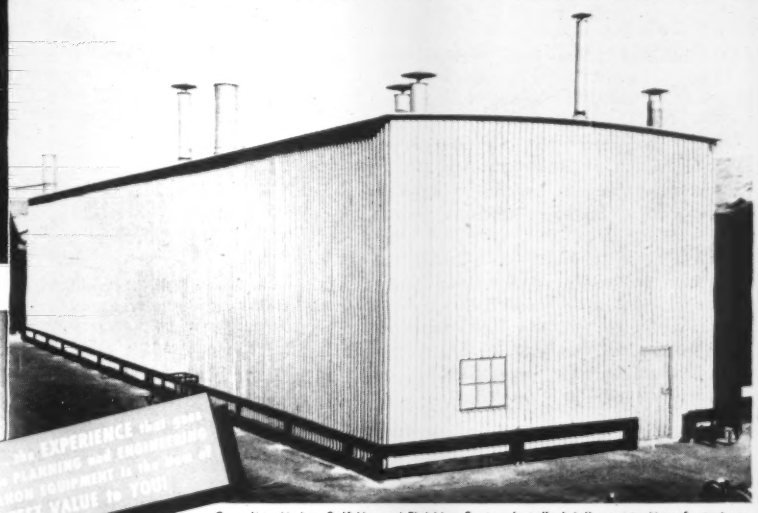
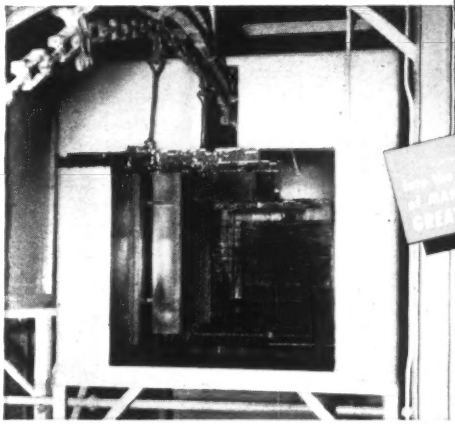


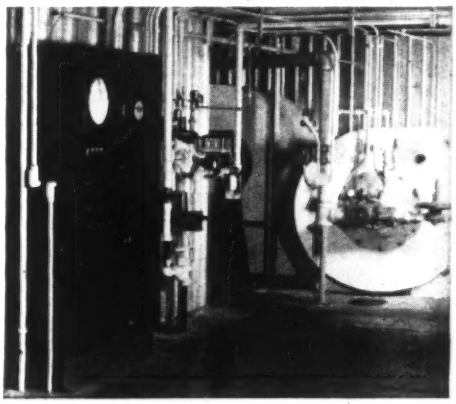
Truck Parts Entering Five-Stage Metal Cleaning and Rust Proofing Machine in the Mahon Self-Housed Finishing System at Right.



Complete Mahon Self-Housed Finishing System Installed Adjacent to Manufacturing Buildings at International Harvester Company's Plant, Fort Wayne, Indiana.



Entrance End of the Mahon Flow Coater. Equipment is provided to maintain Paint at a Constant Temperature and Viscosity.



Mahon Control Panel which Houses Temperature Recorders, Control Switches, Signal Lights and Automatic Safety Devices.

SELF-HOUSED Mahon Finishing System OUTSIDE of PLANT Solves Many SPACE PROBLEMS!

In industrial plants where adequate space is not available, or where floor space and headroom restrictions would seriously interfere with the planning and the engineering of an efficient and economical production finishing system, Mahon engineers recommend installation of a Self-Housed Finishing System on the roof of the plant, or outside the plant adjacent to manufacturing buildings . . . the installation illustrated above is an excellent example. In such installations, no restrictions are imposed by either floor space or headroom; consequently equipment can be planned and coordinated for maximum efficiency. In this particular finishing system, the equipment is installed on two levels . . . the Five-Stage Metal Cleaning and Rust Proofing Machine, the Flow Coater, the Ventilated Drip Enclosure, and the Control Panel with Recording Instruments, are located on the ground level. The Dry-Off Oven, Finish Baking Oven, Oven Heating Units, and Air Supply and Exhaust Equipment are located above on the second level. The roof and walls, which house the complete system, are an integral part of the Oven Construction. This is a highly satisfactory Mahon solution of one manufacturer's production painting problem. When you are confronted with a finishing problem, you, too, will want to discuss it with Mahon engineers . . . you'll find them better qualified to advise you on both methods and equipment requirements. See Sweet's Plant Engineering File for Information, and typical Mahon Installations, or write for Catalog A-657.

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MAHON

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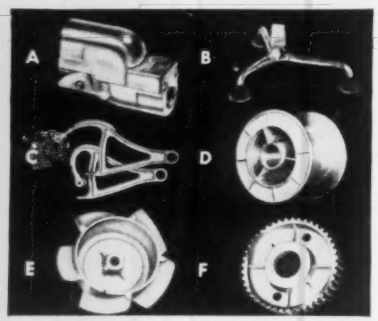
Die Castings of Aluminum and Magnesium

Provide Dependable Strength

Illustrated here are some parts by LITEMETAL that prove Die Castings are not restricted to "sissy" jobs. More and more, as the techniques and equipment for die castings improve, die cast parts are being called upon to do brute strength jobs. Some, such as fans, are required to withstand screaming spin speeds of 17,000 r.p.m., and more. Others must withstand high torque loads, hydraulic bursting pressures, terrific impact or heavy bending loads. Such demands can be met if careful co-operation between customer and die casting engineers, early in the planning stages, is such as to bring out the best in casting design and alloy selection. Quality standards which realistically control the functional requirements of the part must also be established before manufacture of tools and castings is begun.



Illustrated Above: A—die cast coupling, built to withstand hydraulic bursting pressures; B—the above die cast tripod base bears heavy load pressures; C—die cast ladder lock withstands sharp blows—note back portion of photo which illustrates toughness; D—die cast spools have flanges that resist great bending pressures under heavy loads of tension wound wire and nylon; E—die cast cooling fan that withstands high spin speeds of 17,000 rpm—plus; F—die cast drive gear for chain saw, built to withstand high torque loads.

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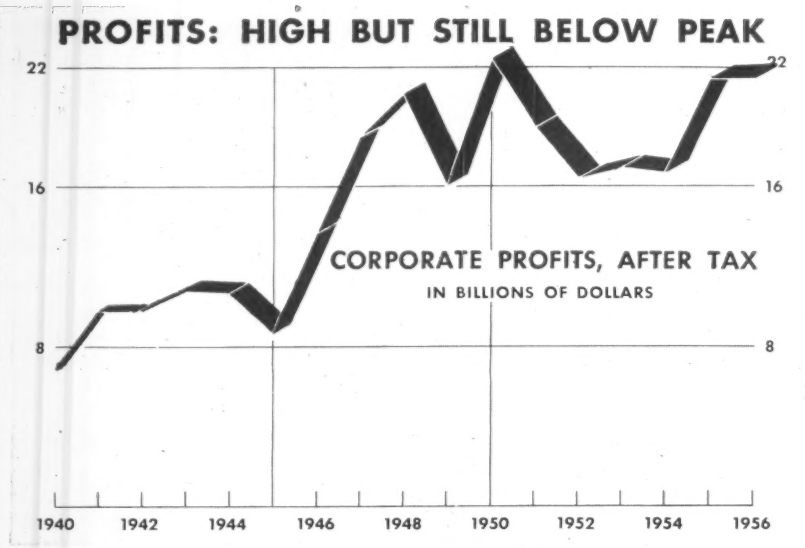


It is interesting that dividend payments in 1956 were about 10 per cent larger than in 1955, although corporate net profits after taxes were about the same as in the preceding year. Data from the Department of Commerce; 1956 figures a preliminary estimate.

and were higher than in any other postwar years, they remained lower than in some past periods. (See Compass Point 34, 37, and the chart on page 30.)

While the effectiveness of the policy of credit restraint is still difficult to determine fully, there is some evidence of credit curtailment. The rate of increase in business loans slackened in the second half of 1956. The rates of increase in both mortgage debt and consumer credit diminished, too, although both were at record levels at the year-end. There was an increase in repayments of business loans in the early weeks of 1957. While an increase in business loan repayments is customary at this time of year, the rise this year was larger than last.

Wages outpace prices

Inflation's impact was felt in almost every pocketbook in 1956. Although Government officials felt sure that discounts on the prices of 1957 cars and declines in meat and clothing prices would result in a dip in the cost of living in December, people were still paying more for life's necessities than a year ago.

The Consumers' Price Index in the fourth quarter of 1956 averaged almost 18 per cent higher than the average for the years 1947–1949 and was almost 3 per cent higher than a year ago (Compass Point 7).

The December slice in 1957 model car prices was attributed not to jitteriness among the dealers, but to their competitive spirit. The only car prices included in the Consumers' Price Index are those for Chevrolets, Fords, and Plymouths. The discounts appeared to be most frequent in the metropolitan areas where competition is keenest.

To almost 1 million workers whose wages are pegged to changes in the Consumers' Price Index, the rise in the cost of living in November brought a pay increase, effective on January 1, 1957. It was suspected that another increase in the price of steel might result from wage rises.

The average factory worker's take-home pay in November could buy about 1 per cent more goods and service than a year ago, although the gain in retail prices was more than twice that.

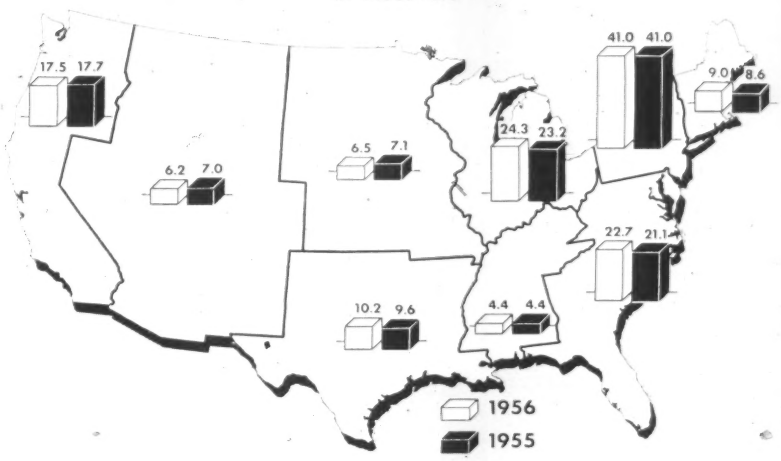
Costs worry farmers

Improving for the first time in five years, net farm income in 1956, at about $11.7 billion, was 5 per cent higher than in 1955. It was thought possible that the farmers' net income might climb further in 1957, although production costs, now about 15 per cent higher than average for the years 1947–1949, will probably continue to rise, too.

The farm proprietors' equity—arrived at by subtracting their debts

NEW BUSINESS INCORPORATIONS

IN THOUSANDS



While new business incorporations dropped below the year-ago levels in the last five months of 1956, the annual total rose to a new all-time high. At 140,775, the number of new charters granted was 1 per cent above 1955, 20 per cent above the 1954 figure.

from their assets—reached a new peak of $155.3 billion in 1956, an increase of $3.9 billion from 1955. Record exports of farm products again in 1957, coupled with high domestic consumption and continued success with the soil bank program are expected to improve the farmers' financial position once more. But both the volume and composition of farm output are expected to remain unbalanced with domestic and export demand. A full solution to the farmers' problems is yet to be found.

Squeeze on profits

Concern over higher costs was prevalent among business men in 1956 and the increased outlays for new and improved machinery and

Regional Highlights

Electric power output in early January was 6 per cent above a year ago for the United States as a whole; gains ranged from 10 per cent in the Pacific Southwest region to 3 per cent in the Mid-Atlantic States.

Altogether, 451 miles of toll roads went into use for the first time in 1956; these projects were the Indiana, Kansas, and Kentucky Turnpikes. State appropriations for turnpike financing in the United States in 1956 were 76 per cent below 1955 and 86 per cent below 1954.

New Jersey state revenues from July 1 to November 30, 1956 were 27 per cent above the comparable 1955 level; noticeable year-to-year increases were reported in motor vehicle fees and fuel taxes, cigarette taxes, and inheritance taxes.

Eight of the nine major geographic regions reported more business failures in 1956 than in 1955, with the sharpest increases in the West South Central and Mountain States; New England failures declined 3 per cent. For the United States as a whole, failures were up 16 per cent from 1955.

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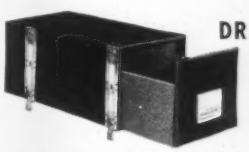

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equipment attested to the need for greater production efficiency. Although business sales in 1956 were at record levels, the cost-price squeeze wrung a little of the zest out of profits.

Corporate profits before taxes rose to about $43.4 billion from the previous all-time record of $42.7 billion in 1955, while after-tax profits edged sidewise at a level of about $21 billion. Compass Point 15 and the chart on page 32 add some perspective to the profit picture.

A strong tide of mergers, stemmed to some extent by the vigilance of the Federal Trade Commission, was another reflection of the pressure of competition. While the figures are not yet available, it is believed that there was very little abatement in the urge to merge in 1956, although the Government was active in challenging consolidations it considered in restraint of trade.

Personal income high

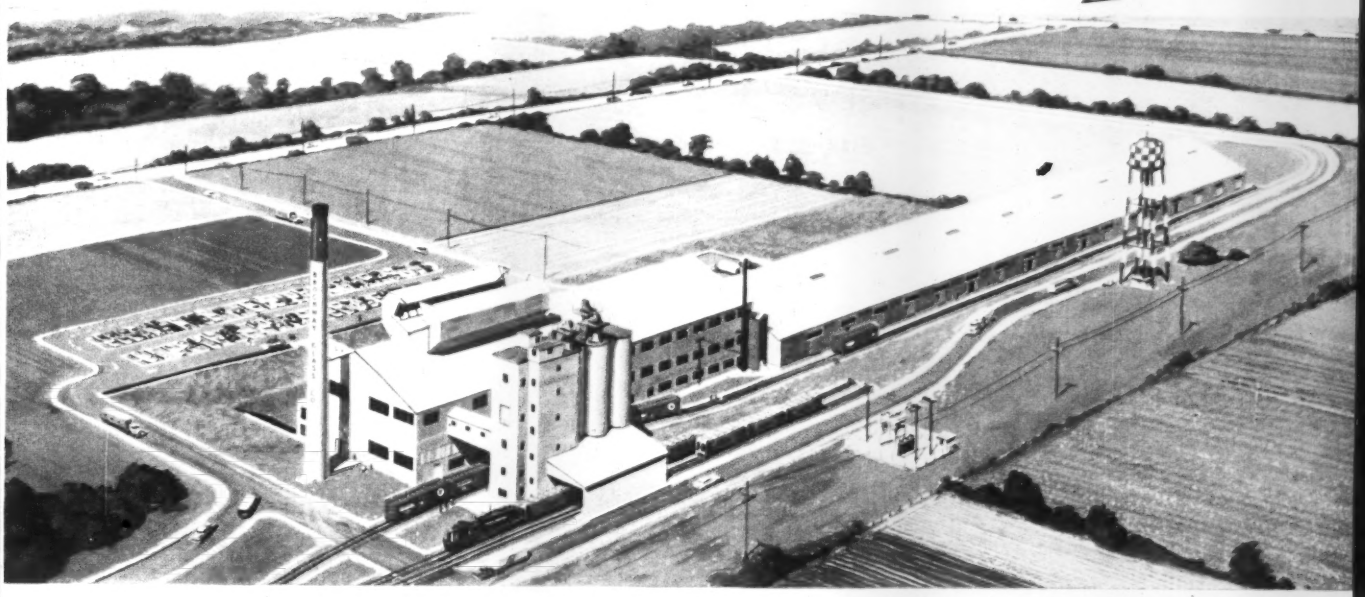
Their dollars bought a bit less than in 1955, but consumers had enough more of them in 1956 to allow an increase in the unit volume of buying. With the exception of the third quarter of the year, when unpaid idleness increased as a result of the steel strike, the unit volume of consumer purchasing power increased a little, ending the year at a level roughly 1 per cent above that in the comparable period of 1955 (Compass Points 13 and 14).

Retail margins thin

The unit sales volume of department stores increased only 1 per cent in 1956, in contrast with the 5 per cent gain in dollar volume, according to a report from the National Retail Dry Goods Association. Some 300 department and specialty stores surveyed by the Association expect a 3 per cent gain from a year ago in the dollar volume of their sales in the first half of 1956. But they thought that profits might not rise at all from the year-ago level because of the steady encroachment of higher costs.

The pace of buying at retail calmed noticeably, as it always does, after the Christmas buying rush. Retail sales in early January were substantially below the peak levels in the latter part of December, but still

Foresight by Brockway



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maintained slight year-to-year gains, as measured in dollars. The expansion in dollar volume was less than the rise in prices from last year, indicating a drop-off in unit sales. Regionally, the New England, Middle Atlantic, and East North Central states had less favorable comparisons with a year ago than the other areas.

The Christmas trade reached record proportions after lagging somewhat in the first half of December. The year-to-year gain for December was about half as large as the average for the rest of 1956. This was disappointing to some retailers who had enlarged their inventories in the expectation of a bigger volume. But inventories were not of troublesome proportions at the year-end and January clearance sales no more sweeping than last year.

Actual building off

While dollar outlays for new construction in 1956 set a record for the tenth consecutive year, the physical volume of building fell 2 per cent below 1955's peak. This was attributed entirely to the decline in home construction; the physical volume of construction other than housing was 4 per cent higher than in 1955. Total new construction was valued at $44.3 billion in 1956, some 3 per cent higher than 1955's $43 billion.

Contract awards for new construction, which tend to precede the actual volume of work put in place by two or three months, fell below a year ago in December for the fourth successive month. At $1.6 billion, December awards were 18 per cent below the comparable 1955 level, according to reports from the F. W. Dodge Corporation. The drop was largely attributable to a decline in residential awards, which fell 37 per cent below a year ago. Heavy engineering contract awards were 4 per cent higher than in December 1955.

Notwithstanding the drop in contract awards, 1957 is expected to be another record year for construction, in both physical and dollar volume (See "Construction: Peak Year Ahead," DUN'S REVIEW AND MODERN INDUSTRY, January 1957).

This is a Business Conditions Staff Report, prepared by Lorraine Carson, Business Conditions Editor.

DOORWAY to the Future

Behind the doors of Borg-Warner's extensive new Research Center at Des Plaines, Illinois, many of tomorrow's wonders are being created.

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BUSINESS FAILURES

FOLLOWING the usual seasonal pattern, business failures declined in December to 982, but they boosted their total for 1956 to a postwar high of 12,686. Sixteen per cent more businesses failed than in the preceding year; but failures were still 7 per cent below the 13,619 in prewar 1940.

Failures occurred during 1956 at a rate of 48 for each 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*, as reflected in DUN'S FAILURE INDEX. This rate exceeded the 42 failures for each 10,000 listed enterprises in 1954 and 1955, the previous peak for the postwar period, but it was considerably less severe than the rate of 63 casualties per 10,000 businesses in 1940.

Dollar liabilities of the concerns failing in 1956 climbed to $562,697,000, with a marked increase of 25 per cent among businesses with liabilities in excess of $100,000. Failures of smaller size ranged 14 to 18 per cent above 1955. Casualties with liabilities under $5,000 were less numerous than in 1950, but tolls in all other size groups reached record high levels for the postwar period.

In all major functions, failures increased during the year. Construction casualties climbed 31 per cent above 1955; retailing, 19 per cent; and commercial service, 18 per cent. Figures for manufacturers and wholesalers edged 4 per cent above the previous year. While manufacturing casualties were less numerous than in 1949, tolls in all other functions rose to the highest levels in the postwar years. More construction and service failures occurred than in any year since the record for these lines was begun in 1934.

All types of service except undertaking had more failures, with marked rises in hotels and personal services. Retailing tolls climbed in all major trades; apparel and automotive lines ran 34 per cent above 1955 and general merchandise 42 per cent above. Failures of appliances, radio, and television dealers declined for the second year from the peak level of 1954.

Although an increase between 1955 and 1956 prevailed generally in manufacturing, most industries had fewer failures than in some of the earlier postwar years. Only the lumber and lumber products toll represented a record high for the period. —L. C.

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)	Number 12 Months 1956	1955	Liabilities 12 Months 1956	1955
MINING, MANUFACTURING	2285	2202	191.2	156.9
Mining—Coal, Oil, Misc.	42	55	8.2	5.2
Food and Kindred Products	188	165	10.4	14.2
Textile Products, Apparel	537	506	34.5	25.3
Lumber, Lumber Products	401	336	22.9	13.7
Paper, Printing, Publishing	123	114	7.5	6.8
Chemicals, Allied Products	61	49	12.6	3.5
Leather, Leather Products	84	80	5.5	4.4
Stone, Clay, Glass Products	33	49	4.7	1.8
Iron, Steel and Products	139	120	12.1	14.2
Machinery	259	291	30.2	37.3
Transportation Equipment	64	47	5.2	5.3
Miscellaneous	354	390	37.4	25.4
WHOLESALE TRADE	1207	1164	74.7	57.7
Food and Farm Products	300	274	12.8	12.6
Apparel	49	62	2.2	2.2
Dry Goods	47	54	1.8	4.1
Lumber, Bldg. Mats, Hdwre.	147	135	18.1	7.0
Chemicals and Drugs	45	36	1.5	1.2
Motor Vehicles, Equipment	66	68	3.6	2.0
Miscellaneous	553	535	34.7	28.5
RETAIL TRADE	6341	5339	156.0	121.6
Food and Liquor	1102	1053	18.8	19.6
General Merchandise	274	193	9.6	5.2
Apparel and Accessories	1161	865	28.8	17.8
Furniture, Furnishings	793	719	26.7	21.1
Lumber, Bldg. Mats, Hdwre.	380	324	11.3	10.4
Automotive Group	727	544	22.2	12.9
Eating, Drinking Places	1149	956	23.9	20.3
Drug Stores	165	128	3.5	2.6
Miscellaneous	590	557	11.3	11.8
CONSTRUCTION	1834	1404	100.8	83.2
General Bldg. Contractors	708	443	54.1	39.8
Building Subcontractors	1030	880	41.4	34.5
Other Contractors	96	81	5.3	8.9
COMMERCIAL SERVICE	1019	860	39.9	30.0
TOTAL UNITED STATES	12686	10969	562.7	449.4

Liabilities are rounded to the nearest million; they do not necessarily add to totals.

THE FAILURE RECORD

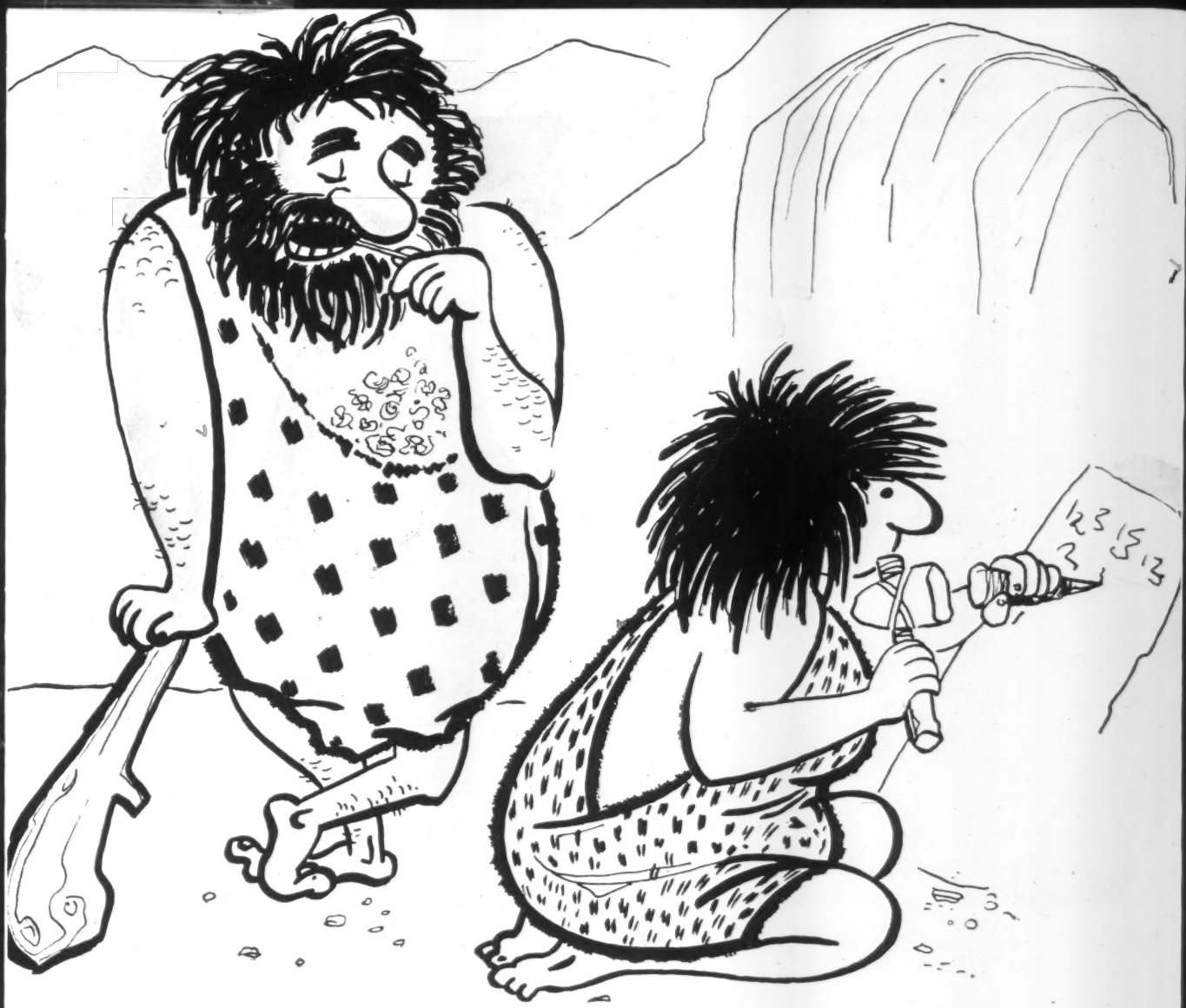
	Dec. 1956	Year 1956	Year 1955	P.C. Chg.†
DUN'S FAILURE INDEX*				
Unadjusted	44.8	48.0	41.6	+15
Adjusted, seasonally	47.2	—	—	
NUMBER OF FAILURES	982	12686	10969	+16
NUMBER BY SIZE OF DEBT				
Under $5,000	147	2032	1785	+14
$5,000–$25,000	488	6152	5412	+14
$25,000–$100,000	263	3431	2916	+18
$100,000 and over	84	1071	856	+25
NUMBER BY INDUSTRY GROUPS				
Manufacturing	172	2285	2202	+ 4
Wholesale Trade	72	1207	1164	+ 4
Retail Trade	472	6341	5339	+19
Construction	183	1834	1404	+31
Commercial Service	83	1019	860	+18
(LIABILITIES in thousands)				
CURRENT	$50,279	$562,697	$449,380	+25
TOTAL	50,358	568,166	453,130	+25

*Apparent annual failures per 10,000 listed enterprises, formerly called DUN'S INSOLVENCY INDEX.

†Per cent change, Year 1956 from Year 1955.

BUSINESS FAILURES *include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.*

CURRENT LIABILITIES, *as used in The Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.*



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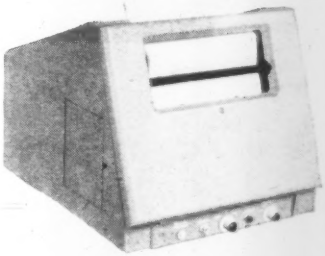

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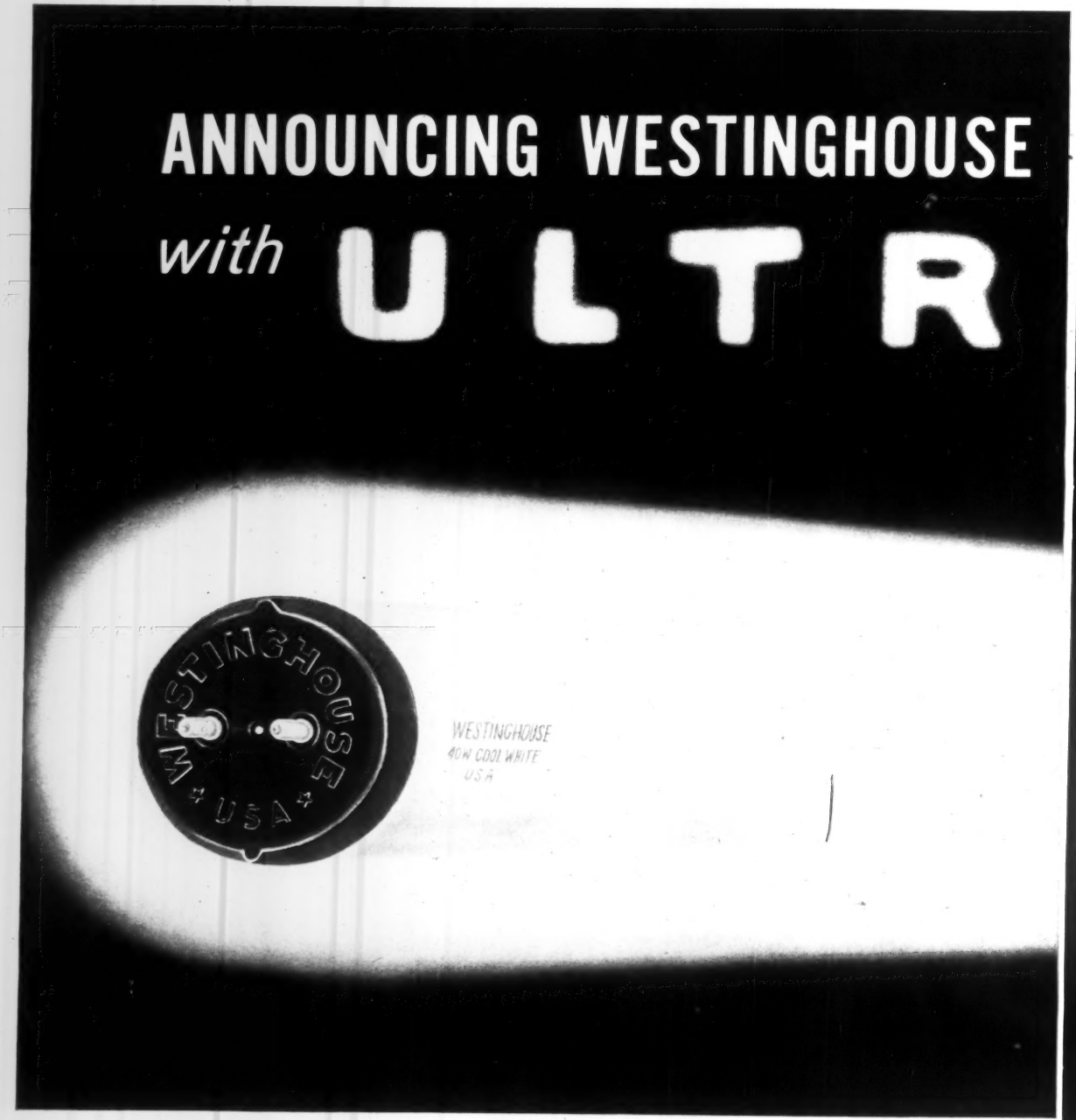

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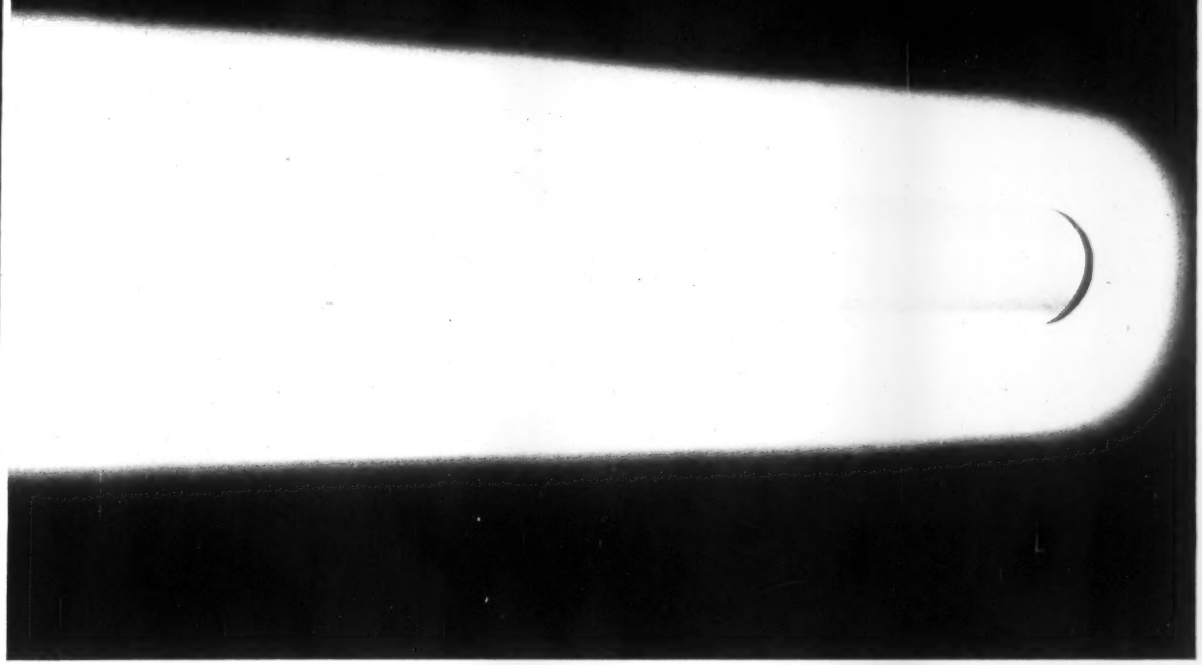

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Devaney Photograph

What Management Should Know About EXECUTIVE COMPENSATION

ARCH PATTON

Good executives are in short supply, and the shortage has stimulated an almost frantic interest in plans to attract and hold them. But some of the money is being wasted or, worse still, is working against the very results it is being spent to produce. Here are some ground rules for an effective approach to executive pay.

A LARGE COMPANY that had been losing ground steadily for some years recently acquired a new president. In his preliminary survey to determine what was needed to revitalize the slipping giant, the new president noted that executive salaries were on the low side. He suggested to the board of directors that salaries be increased, and commented, "If you want top-flight executives, you have to pay for them."

His remark is symptomatic of a growing management tendency to consider compensation the magic wand that somehow creates skillful executives. He did not say why he felt that paying more money to the very people who had mismanaged the business in the first place was going to improve things. Nor, apparently, did he recognize that the principal advantage of above-average compensation is long-term and not short-term, that it builds for the future by attracting men with above-average competence and talent. He simply reached for the handiest current cure-all in management's pharmacopoeia: compensation.

This absorption with the curative powers of compensation has attained monumental proportions. Almost pathological attention is lavished on compensation surveys, on proxy statements that disclose new compensation devices, on deferred-compensation agreements, and on speakers who are presumed to know something about the subject.

But compensation—by itself—does not develop executives. Good executives are the result of native ability and effective management action. This means that a company acquires them by careful selection, sound training, effective organization of functions, delegation of responsibility and authority—and a judicious administration of rewards and penalties in the developmental process.

Compensation is no substitute for leadership. Many companies whose executives are relatively low-paid have outstanding growth records. In these cases—and they are fairly frequent—the critical importance of leadership is being demonstrated.

Perhaps it is simply that executive compensation has gotten a bit out of focus. To be sure, it is the principal yardstick of the incentive provided for the executive group—leadership, working conditions, and the

like are intangible, hence unmeasurable. But compensation is only *one* tool in the managerial kit. In fact, there is plenty of evidence that without the essential leadership skills at the top, high compensation is unproductive.

Preoccupation with compensation, *per se*, without clear recognition of the importance of skillful administration, is one of the managerial shortcomings of our day. For example, one of the low-paid industries of a few years ago has become a relatively highly compensated industry in less than a decade. Why? The chief executives of several leading companies passed out of the picture at about the same time. No internal successors had been developed; so it was necessary to reach into the open market for replacements. The directors of these companies paid a very high price to get replacements. This substantial upgrading in key companies quickly led to general increases throughout the industry.

By and large, the quality of executive talent did not improve with industry-wide upgrading of compensation—for the same men were still on the job in most instances. It was simply a case of compensation administration by default. The industry is now paying more for its executives, but there is no indication that the stockholders are getting better results for the outlay.

Why Executives Are Paid

What is an executive paid for? That is the key question. In the early days of industry, company owners were their own executives, and their "compensation" (largely dividends and capital increments) was the direct result of their decisions. When professional managers replaced owners as executives, the importance of decisions made or influenced remained the dominant element in determining compensation.

We find that the president, or treasurer, or manufacturing vice president of a company doing $100 million worth of business in a given industry is likely to be paid twice as much as his opposite number in a company doing $15 million. Executives in the smaller company are probably making as many decisions, and almost certainly making them with less staff assistance than executives in the larger company, but the value (or importance) of their decisions tends to be substantially less.

It goes without saying that executives are also paid for leadership, and the bargaining position in which they happen to be. But, broadly speaking, the importance of decisions made or influenced is a well-established basis for their compensation.

The "importance" of these decisions has another facet: Some industries pay more than others. For example, a recent survey of top management compensation showed that among companies earning $3 million net income, public utilities pay their chief executives an average of $36,000 and railroads pay $56,000. But, still in the $3 million category, chemical companies pay their chief executives an average of $71,000, and retail trade pays $86,000.

Why this large differential? Evidence is reasonably clear-cut that it can be traced largely to that word "important" as applied to decisions. Let us consider the relative risk elements involved in these industries.

Consider pricing: Utilities and railroads are permitted few risks in pricing because of government control; and the necessity for action on prices is normally predictable well in advance. Furthermore, the products sold are not subject to inventory losses or overnight obsolescence. So utility or railroad presidents take no great individual risk when a pricing decision is made.

But if chemical and retail companies set prices too high, they encourage competition. Moreover, a bad guess on the willingness or ability of the market to pay a specific price can yield substantial inventory losses. And style obsolescence is an almost daily occurrence in retailing.

Consider capital outlays: Utilities and railroads can predict the need for new facilities with considerable accuracy, and the monopoly nature of their business means that new investments can be made with reasonable security.

But when a chemical company sinks millions in a new process, it runs the risk of overnight obsolescence because of a still newer process. Similarly, an addition to a downtown retail store can become a white elephant when a few suburban shopping centers are opened.

Consider people: Jobs in utilities and railroads are fairly routine. The end-products change hardly at all, and the essential processes change very slowly. This means that forecasting the effectiveness of an individual on a given job is easier, for relatively more people are able to handle the fairly routinized work.

The chemical industry, on the other hand, is dealing with people who must make the future evolve as they want it to evolve. The retail industry is prejudging style whims of the female population. Both jobs call for pretty special people.

Consider number of decisions: The important decisions directly affecting profits in the utility and railroad industries are relatively few. New facilities and raw material contracts would be among the more important. For the most part, management shares these decisions with the directors, and frequently they are made on a unanimous basis.

The lowliest executive in the retail industry, the buyer, will almost certainly make more decisions directly affecting profits in a week than a utility or railroad president will in a year. These decisions are not so important dollarwise, perhaps, but they have a certain nagging quality—they must be made *now*. The executive cannot wait for a committee to share the risk involved; he himself must accept it.

Similarly, the chemical executive faces a steady stream of profit-oriented decisions that must be made in

continued on page 122

THE AUTHOR • Arch Patton has pioneered in the development of effective yardsticks for measuring executive compensation. Several years ago he directed the American Management Association Executive Compensation Survey, which was in itself one of the first organized efforts to evaluate executive compensation.

More recently he has studied the effectiveness of executive incentives in some of the country's leading companies. He has written and spoken extensively on such devices as stock options, deferred-compensation contracts, and incentive bonus plans.

Mr. Patton, a principal in the management consulting firm of McKinsey & Company, Inc., was for some years vice president in charge of merchandising and advertising for the Wilbur-Suchard Chocolate Company. He had previously been assistant to the president of R. Hoe and Company, the largest manufacturer of newspaper and magazine printing presses.

What to do about . . .

PRODUCTS THAT COME HOME TO ROOST

Old products don't die, and they don't fade away. As many a manufacturer can testify, they just come home to roost. Repairing them can be a mighty expensive matter. Yet, refusing to do so can be even more costly in customer good-will. Here's how a score of companies handle the problem.

ANNESTA R. GARDNER, *Industrial Editor*

"We make a good product," the plant manager said sadly. "Our service shops rarely see one before it's five years old, even though we give only the usual one-year guarantee.

"Our products are reasonably priced, too. They don't represent a big investment.

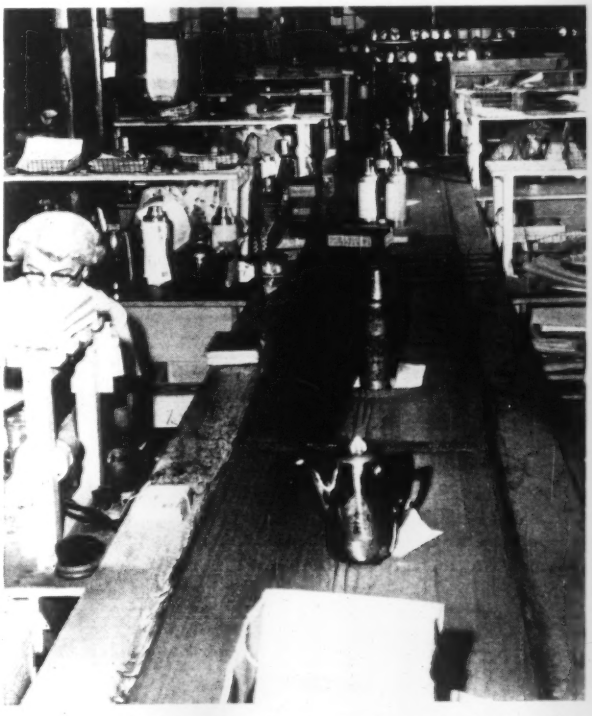
"You'd think that after ten, maybe fifteen, years customers would be willing to junk them and get a replacement—particularly when the new models are so far superior to the old.

"We've added a raft of new features—extra speeds, automatic shut-off, indicator lights . . .

"But, no. Some customers still want to keep using the old ones and insist that we keep them in operating condition. We can't refuse. We'd lose too much good-will. But it sure plays hob with the budget.

"We do charge for replacements, but we can't begin to charge what it really costs to hunt up the old blueprints, put the job through the shop, and install the parts. It's a rough problem."

Quality and progress are product virtues that can add up to trouble on the repair line. Progress made *Universal* coffeemakers at left obsolete. But quality keeps them in use. Though over 35 years old, some still turn up at LF&C plant for reconditioning.



Repair costs are high, even when operation is mechanized. But LF&C believes service is important to maintain customer good-will.

IT'S A ROUGH PROBLEM for a lot of companies, and there is no single, simple solution. But there are ways to keep costs within bounds.

Pictured on the following pages are a number of specific methods that can be used. But, before any of these steps are adopted, it's important to formulate a firm, clear repair and replacement policy for obsolete products, a policy that provides definite answers to such questions as: Who will do the repair work? Where? At what cost? For what period of time after the product becomes obsolete?

A limited survey by DUN'S REVIEW AND MODERN INDUSTRY shows a wide divergence of service policies and procedures—even within a single industry.

Service charges, for example, range all over the lot.

The lifetime guarantee, with its promise of free or nominal-cost service, is going out of style in many industries. There are some companies which still favor it, though (see page 31).

In the writing implement field, for instance, both

PRODUCTS . . . *continued*

Parker and Sheaffer used to have life service contracts, under which pens were repaired for a maximum charge of 35 cents. Both still honor these agreements where they apply, but neither offers them on current models. Instead, Sheaffer sets a flat fee for servicing, "which gives the customer a complete reconditioning —provided there is no willful damage —at a cost not to exceed the price of a new cap." Parker has a minimum labor and handling charge of 85 cents, and makes an additional charge for replacement of "major visible parts" where necessary.

It is quite possible that the lifetime service contract will come back into style at some future date. Meanwhile, most companies are charging for repairs, and doing their best to bring receipts closer into line with actual costs.

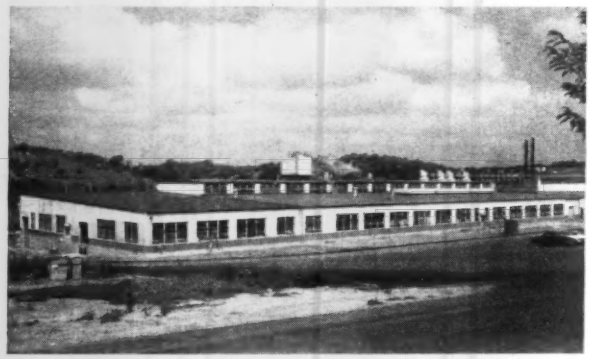
DeVilbiss Company, for example, now charges for replacement parts "at current market prices." This may not cover the entire cost, but it does help.

Chicago Apparatus Company, once a manufacturer of laboratory equipment, but now a distributor, charges full cost for repair of very old equipment. For repair of newer items, it generally establishes a flat rate.

Porter-Cable Machine Company has established standard prices for replacement parts, and a flat labor charge for a complete teardown and rebuilding of its portable power tools. Repairs that involve less than a complete overhaul are charged on a percentage basis.

Service Contracts Coming Up

Many companies are now emphasizing short-term, realistically priced maintenance contracts. Friden Calculating Machine Company offers its customers a choice between two systems: a flat labor charge ($5.50 for the first hour and $5 an hour thereafter in six-minute increments) or



New plant—old products. This Pittsburgh Plate Glass factory was built especially to produce windshields for non-current cars.

The plant that

Everything that comes out of this brand-new plant is obsolete—even before it's made. That's because it was built to meet the demand for curved windshields for back-model cars.

Until about ten years ago, windshield replacement was no problem. Windshields were nothing more than a flat plate of glass, cut to the desired size. Then came the curved, wrap-around design, and replacement troubles began. Each car and each year has its own style, and they have to be factory-built. Furthermore, the quantity required makes it almost impossible to

Work-handling tables for glass-cutting are wide enough to fit all models, yet not so wide long reaches are necessary. Many job shops can use semi-automatic equipment to speed operations, eliminate safety hazards, hold product damage to a minimum.

Templets and power tools also give workers a helping hand. Though jobs like this cannot be fully mechanized because of low production volume, quality and output can be increased. Here, glass plates are shaped to fit the varied windshield patterns.

an annual maintenance contract. However, Friden urges customers to accept the latter. The maintenance contract, as company executives point out, assures the customer of continuing high-level performance.

When products are not serviced regularly under a contract of this type, and are not subject to a lifetime guarantee, the question of cut-off point becomes a mighty important one. This is the point beyond which, in most cases, complete repair and replacement service is not provided.

Here, again, there is wide variation, though of course the age of the company, and of its oldest products, does have some effect.

For example, Landers, Frary & Clark, well known for its *Universal* coffeemaker (photograph, page 45) and other home appliances, has been in business for 110 years. It has many venerable products in the field, and is frequently called upon to supply replacement parts. LF&C regularly reconditions products that are 30 or 40 years old, and does its best to service many of the older ones.

Cory Corporation is also a well-known and respected producer of home appliances. But it is a mere stripling of 24 years. Its present cut-off points, therefore, range from five to ten years. But Cory recognizes that the service problem will grow as time goes on, and is rapidly expanding its service facilities and training service personnel to meet the need.

There are, however, exceptions to the general rule that the older the company, the longer it provides service. General Electric has been building motors since the turn of the century, and Bostitch has been making stapling machines for an equally long period. But their cut-off policies are not the same.

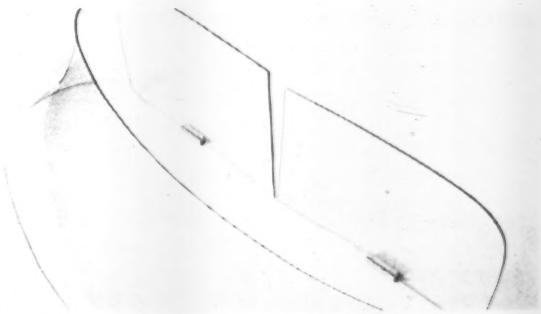
General Electric's Medium Induction Motors Department still services some motors that are more than 50 years old, though it does cut off after 25 years on certain parts.

Bostitch, on the other hand, will provide service indefinitely, but sets a standard cut-off point of ten years

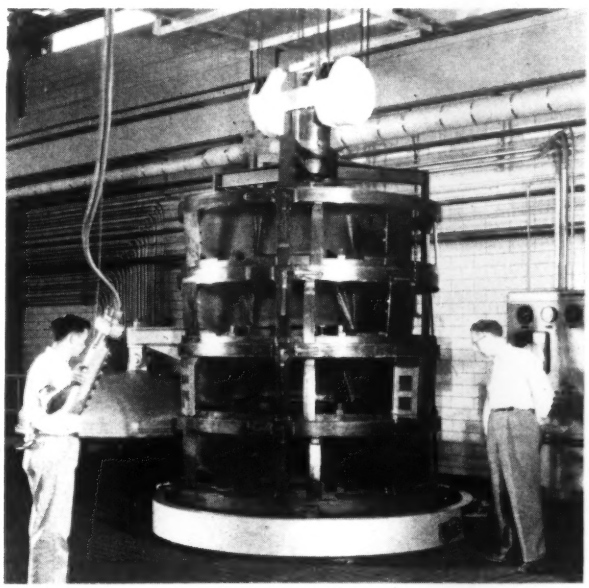
obsolescence built

keep a complete stock on hand indefinitely, and running replacement orders on the regular production line would interfere seriously with new-model production. The best solution, then, was to build a separate plant. That's what Pittsburgh Plate Glass has done, incorporating the best and latest production methods and mechanizing operations as far as possible, as the photographs here show.

Fortunately, every company doesn't need a separate plant for outdated products, but it's almost always a good idea to provide a separate production line.



Replacement was simple when windshields were flat. Now, curved surfaces—different for each model—make it a problem.



Autoclave fixture is built to accommodate wide range of windshield sizes and types. In this operation, plastic interlayer becomes transparent and is bonded to outer glass plates in an oil bath under heat and pressure to produce non-shattering safety glass.

Shipping crates are of standard design, adapted for fork truck handling. Crate sizes have been standardized insofar as possible, too. From this warehouse, replacement windshields are shipped to depots maintained by Pittsburgh Plate's Merchandising Division.

after obsolescence. However, some parts are available for a considerably longer period of time, and Bostitch sales engineers are trained to aid customers in making their own repairs. In addition, on the higher-priced machines, an effort is made so to design new features that they can be incorporated in the older machines to give the users the benefits of improved performance.

What Big Companies Do

Producers of consumer products, like the major home appliances, and manufacturers of automobile and farm equipment, assume no service responsibilities beyond the warranty period. (Service is generally performed by distributors or dealers, or by service organizations under contract to them.) But these companies do devote a great deal of time and effort to the training of dealer personnel in proper service procedures (see below), and they do supply replacement parts.

Even in these fields, though, no two companies are alike, and age of company does not seem to be the determining factor. Kelvinator, which has been making refrigerators for over 40 years, supplies non-functional replacement parts for about seven years, functional parts for fifteen years, and a few special assemblies, like its first sealed-system units, for somewhat longer periods.

Frigidaire's products date back about 35 years. But it still has no fixed cut-off point, and tries to supply functional parts like switches and controls for all models.

Servel's oldest gas refrigerators are now marking their 30th year. Servel has set its cut-off point for replacement of refrigerating units at fifteen years, and for functional parts at twenty years.

On one point in regard to servicing obsolete products, almost all companies agree: Charges can rarely equal actual costs. This means that anything that can help reduce service costs is money-in-the-pocket for the manufacturer. Experts like K. J. Doll of GE, S. A. Rugg of Toastmaster, and Paul Azzolina of Westinghouse Air Brake's Le Roi Division, suggest a good many ways this can be done.

Perhaps the best way to keep service costs down on obsolete products is to keep them from coming home to roost—to keep them out of the manufacturing plant, or at least away from the main production line.

Among the steps that can help achieve this goal are: encouraging trade-ins and supplying changeover kits (see below); training field organizations to do as much of the work as possible, providing complete and detailed service manuals, and encouraging the field organizations to salvage old parts for their own use from machines that are turned in; and making sure that, when repair work is done, it is as complete and lasting as possible.

Check Overseas Branches

Manufacturers like Caterpillar Tractor Company, Friden Calculating Machine, and Oster Manufacturing, which market equipment on a worldwide basis, emphasize that these steps are particularly important in foreign operations, where shipping costs alone may be extremely high, and there is great danger that products will be further damaged in transit.

There is still a hard core of products, though, that insists on coming back to the plant. Unless this core is very small indeed, most experts recommend that a separate repair department be set up to handle the work. It may seem simpler just to

Six ways to cut

Changeover kit helps DeVilbiss customers replace old air compressors with new, and up-to-date paint spraying equipment. Changeovers and trade-ins can do a lot to reduce demand for costly reconditioning of obsolete models and replacement parts.

Distributors can be trained to repair old equipment, and encouraged to salvage parts from trade-ins. Caterpillar Tractor Company finds that its distributor service training program builds good-will, saves time and money for both manufacturer and user.

Good storage system makes it easy for Caterpillar Tractor distributors to find required parts, and give fast, efficient service. System also prevents losses and heads off needless requests for specially made replacement parts of obsolete units.

run repair orders down the main production line, but it is likely to be an expensive simplicity. Set-up charges and production delays can skyrocket manufacturing costs. A separate repair line, using standard factory procedures as far as possible, is usually a lot less costly in the long run.

In setting up a service department, incidentally, it's a good idea to be prepared for the unlikely and even the "impossible" in the way of product damage. Parker Pen Company's General Service Manager John Francis reports that he's received pens that have been melted in bread toasters, frozen in food lockers, sent to the laundry, dropped in caustic soda tanks, and used as teething rings by cows, bears, monkeys, and sheep. And the fond owners always expect them to be returned "as good as new."

Stop Problems Here

There is still another way—and an important one—to reduce repair costs on obsolete products. This, however, involves foresight rather than hindsight: designing products for maximum life and maximum interchangeability of parts. While few would recommend holding back design improvements to prevent product obsolescence, many would agree that the advantages of each change should be weighed against the service problems it may create.

Summing up, obsolescent products present many special problems in repair and maintenance. But many measures aimed at reducing servicing costs in general will help in this particular area, and it is well worthwhile to take advantage of them.

Ten Ways to Save

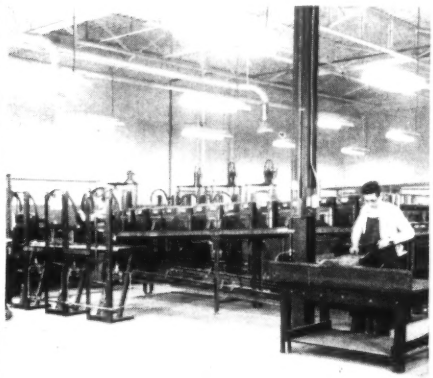
Among the most important steps in reducing service costs are:

- Encouraging trade-ins and changeovers so that obsolescent equipment is taken out of service at the earliest possible date.
- Training sales engineers to spot small troubles and repair them before they turn into major disasters.
- Salvaging as many parts as possible from trade-ins and discarded products for use on the repair line.
- Providing clear, well-illustrated service manuals.
- Establishing firm policies in regard to service charges and cut-off points. (The system need not be inflexible, but a basic policy should be laid down, and exceptions should be explained and justified.)
- Setting up an efficient paperwork system for controlling repair operations so that products will be routed in the most efficient manner and a realistic picture of service costs will be available at all times.
- Devising a replacement parts inventory control system that will make sure there is an adequate supply of frequently needed items and that storage space is not being wasted on parts for which there is little or no demand.
- Studying repair operations to find job elements that occur over and over again and might lend themselves to mechanization.
- Doing as complete and thorough a repair job as possible on each unit that comes in so that it will not soon return for additional work.
- Enclosing operating instructions with each return shipment to encourage users to give equipment the care it needs.

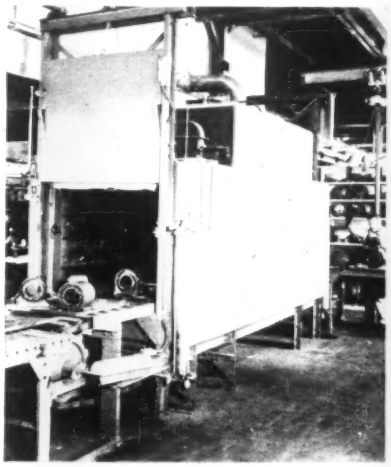
Servicing obsolete products is not an easy job. As one service manager ruefully points out, "We have found it exceedingly difficult to maintain good-will and operate at other than a loss." But losses can be held to a minimum and customers can be well served if management recognizes the importance of product service and adopts procedures like those outlined here and in the case studies on the following pages.

continued on page 50

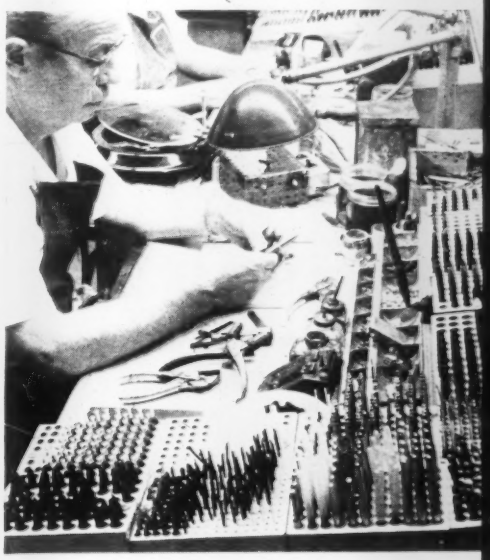
service costs



Thorough testing before repair work begins can save many hours of backtracking and reworking. Alvey-engineered conveyors in this Pennsylvania meter plant carry products quickly, efficiently, and safely through each step of the repair operation.



Basic operations, like varnish-baking in this G-E Apparatus Service Shop, can often be mechanized even though no two repair jobs are identical. Wide-belt conveyor on this automatic baking oven can accommodate practically any size and type of rotor.



Outgoing inspection is at least as important on repaired products as on new ones. Here, Parker Pen Company technician checks reconditioned pens to make sure that they will be returned to their owners looking and operating "as good as new."

HOW TWO COMPANIES

Sheaffer lines them up

Product service—particularly in obsolete models—is small-order work at its smallest. Nevertheless, some operations occur over and over again, and it is possible to speed repairs and cut costs by grouping and mechanizing these job elements. A good example is the set-up at Sheaffer Pen Company, pictured here.

First of all, Sheaffer has a top-notch system for recording and controlling repair work as it goes through. Each package gets its own invoice-work ticket as soon as it arrives. About three-quarters of the packages come from dealers, and it used to be necessary to look up dealer accounts each time for credit and shipping information. Now, all the data are on a single plate, and can be quickly stamped on each work order form.

Then conveyors carry the work to the various stations for inspection, adjustment, and repair. Formerly, each work station performed only one operation—point replacement, sac renewal, and the like. But Sheaffer now finds it's faster—and employees like it better—when each station is equipped for the complete job.

Efficient paperwork is the key to cost reduction in Sheaffer service department. Here, work tickets are made out for incoming packages, using addressplates (right) to record basic data.

Conveyors carry pens to and through repair section, simplify handling, minimize damage and losses. Note the good lighting and good housekeeping—especially important for work of this type.

Individual work station is equipped to do a complete repair job. Note neat racks and trays, designed to hold a full line of replacement parts for the pens on which this operator works.

SOLVE REPAIR PROBLEMS

Individual code number, marked inside the case and recorded on the repair order, identifies each lighter. Here, numbers are checked and lighters placed in trays for transportation to shop.

Zippo follows through

The golden goals of any product repair and replacement system are: *Get each item back to its rightful owner* and *Get it back in good condition.* That's easier said than done. It takes plenty of planning, and plenty of care to accomplish both aims.

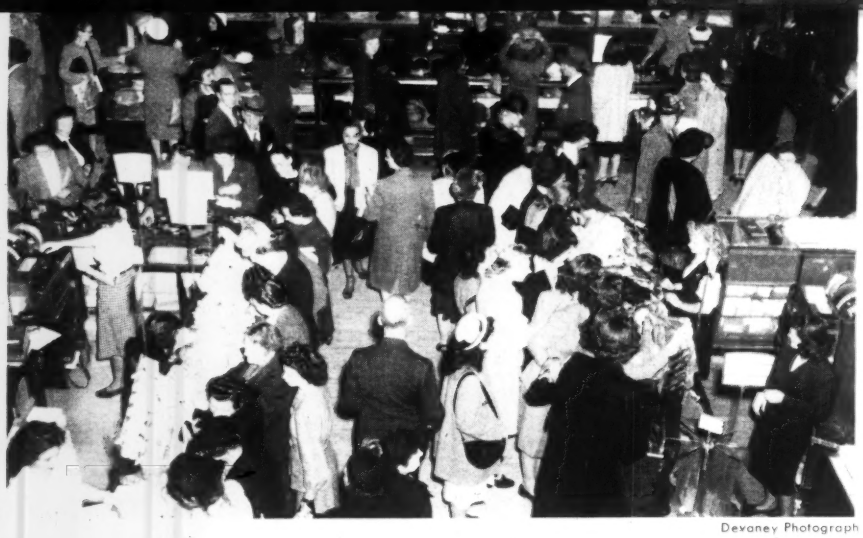
At Zippo Manufacturing Company, cigarette lighters come in by the bagful—250,000 a year—brought by the company's unconditional lifetime guarantee of free repair and reconditioning.

Zippo is proud of that guarantee and takes special care to maintain its reputation for service. The photographs here show how the lighters are handled and illustrate a few of the precautions that help prevent mixups and assure safe delivery at the return end.

It's interesting to note, too, that Zippo does not feel its lifetime guarantee has held back design changes and innovations. Indeed, the company has just brought out another brand-new model—the Slim-Lighter—which is quite different from any of the others and requires many new parts.

Special attention is given to those parts which are likely to receive the most wear. Hinges, for example, are double-checked to make sure that they will give long and trouble-free service.

Careful packing helps safeguard lighters on the return trip, and each shipment is fully insured. Repair service is rapid, too. In most cases, lighters are shipped within 24 hours of receipt.



Devaney Photograph

MOTIVATION RESEARCH——
What's in it for you?

LYDIA STRONG

Here's a first-hand report of how manufacturers in many fields have turned to the controversial techniques of motivation research for help in reaching their sales objectives. Today MR researchers are probing the subconscious emotions of even the hard-headed industrial purchasing agent. But the editors would underscore the author's warning that MR is a marketing tool which must be used with caution and discrimination.

BACK IN PREHISTORY, 1932, Tōwle Manufacturing Company brought a problem to psychologist Henry C. Link. Why wasn't its advertising for sterling silver getting more results?

Company executives had based their campaign on certain "reasonable" assumptions. They knew their sales were heaviest in the Spring, and they connected this correctly with weddings. They assumed also that the customers for their comparatively expensive product were primarily women of the upper classes. So they advertised mainly in "class" magazines, stressing the appeal of tradition—the fine sterling Mother had.

Working through his organization, The Psychological Corporation, Dr. Link studied engaged girls of all social classes. He found that sterling was bought by many brides who were not rich and whose mothers did not own sterling; also, most of the buyers did not read the magazines carrying Tōwle advertising.

Furthermore, Dr. Link established by a series of "conversational interviews" (they'd be called "depth" interviews today) that the whole process of deciding on sterling and choosing a pattern was highly romantic and emotional.

Tōwle added new advertising media and introduced a new appeal: "Candlelight and the Gleam of Sterling." This vastly outpulled previous advertising. A new pattern, "Candlelight," became a best-seller.

If this study were done today, it would be called motivation research; in 1932 the phrase hadn't been coined.

By dictionary definitions, the words "motivation research" should mean the study of all the ideas, emotions, and physical states within a person that cause him to act the way he does. In practice, the term covers a battery of psychological and statistical techniques—some new, some old—for the investigation of *hidden* causes of behavior, which the individual is either unwilling or unable to reveal. For advertising and promotion, motivation research means the study of unconscious or unacknowledged reasons for consumer behavior—whether the consumer is a housewife, a teenager, or the purchasing agent of a corporation.

Motivation research supplements rather than displaces conventional market research. The McCann-Erickson advertising agency, for example,

used both methods to cure the promotion headaches of a distributor of kippered herring.

The agency conducted a direct broad-scale market survey, which showed that all too few housewives ever thought of serving kippers. Why? They didn't like the taste—they said. But answers to other questions showed that two out of five people who claimed not to like the taste of kippers had never tasted them.

The agency then proceeded with more detailed, less directed interviews (depth interviews) in which housewives were encouraged to ramble on freely about their reactions to the word "kipper."

Researchers found, according to Dr. Herta Herzog, director of research for the agency, that "when the customer says no to the taste of kippers, she is hardly talking about taste at all. Kippers, to the average housewife, tend to be foreign—strange, unconventional, unaccepted. She has a kind of mental image of barefoot dock workers slopping around in these slimy fish."

Before housewives could think of enjoying the taste of kippers, they had to be convinced that kippers were accepted and eaten by normal Americans. An advertising campaign was conducted showing kippers with conventional American dishes, such as scrambled eggs. It succeeded in boosting kipper sales.

The Two Extremes

For the ten years since motivation research first broke extensively into print, a debate has been raging, with exaggeration on both sides. Some consultants have oversold motivation research as a cure-all for marketing problems—which it definitely is not. Others have branded it entirely unscientific and impractical. The record shows otherwise.

Today the debate is calming down, according to Wallace H. Wulfeck, chairman of the four-year-old Committee on Motivation Research of the Advertising Research Foundation (and chairman of the executive committee of the William Esty advertising agency). Much of the initial doubt has been dispelled, and motivation research is accepted increasingly as what it is—a set of psychological techniques that provide new ways of stating and solving promotion problems. The danger today, Dr. Wulfeck says, is that it may become too much of a fad, and may thus be used for problems for which it is not suitable.

At times there also arises the ethical problem: What use should be made of research findings? An industrial designer described the experience of a Midwest tractor manufacturer. "Analysis of psychological studies of tractor operators showed they had a deep-seated fear that the machine would upend and overturn on top of them when they were going uphill. When a tractor motor is gunned hard on a steep hill this freakish accident sometimes happens because of the machine's weight distribution (most of the weight, necessarily, is over the rear wheels). To overcome this fear, the firm redesigned its tractor line so that the tractors looked as though the weight were distributed more evenly over front and rear wheels."

If tractor operators are worried about the possibility of an accident that can actually occur, is it right—and, in the long run, is it even practical—to gloss over this possibility with a misleading design?

Purchasing Agents under Scrutiny

Most top advertising agencies now use motivation research techniques as part of their market research; so do many of their clients, both large and small. Psychological studies are used in planning promotion, in developing new products and packages, in evaluating advertising media. An important new area of study, Dr.

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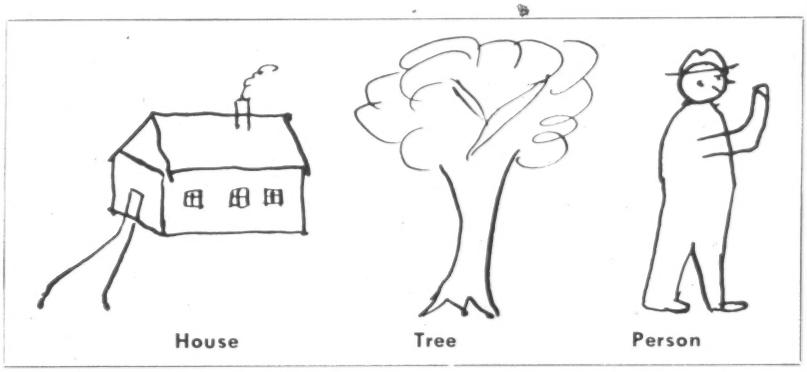
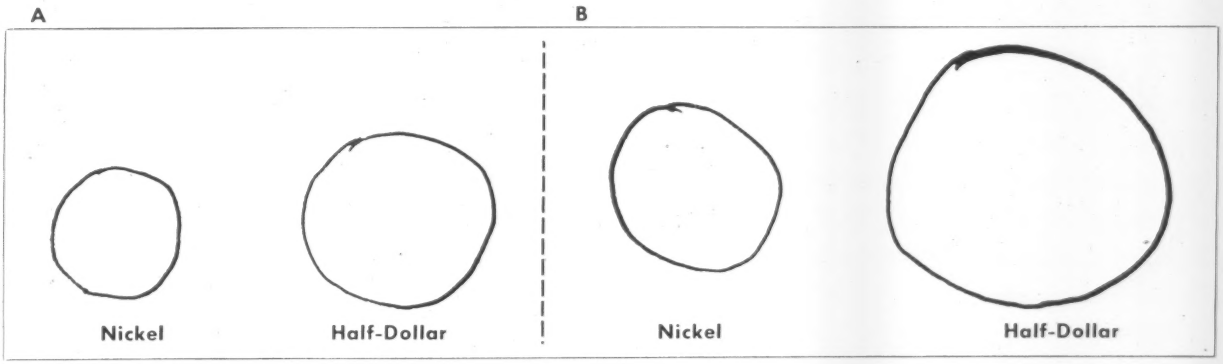


Who smokes mentholated cigarettes? Who smokes the other kind? By looking at drawings like these, a psychologist was able to come up with the right answers. See page 64.



How do they feel about money? By asking people to draw circles the size of a nickel and half-dollar, McCann-Erickson researchers obtained useful insights into attitudes toward spending and saving. The person who drew A above underestimated the size of the coins; B overestimated it. Which is the likelier prospect for travel promotion? Answer on page 68.

The Grand Union outlet in East Paterson, N. J., has an automatic supermarket built into its store front. The A&P has recently opened a similar installation on Long Island. Other major grocery chains are expected to enter automatic merchandising soon.

Sales by vending machines are up 66 per cent since 1950, are expected to rise another 50 per cent in the next four years. And the robot salesmen are reaching out into new fields. How do the possibilities and the limitations of "distribution automation" shape up?

THE SALESMAN WHO NEVER SLEEPS

AARON STERNFIELD

A NEW JERSEY housewife pulls her car into the parking lot of the neighborhood supermarket and buys a dozen eggs, a pound of coffee, a quart of milk, and a loaf of bread without even entering the store. An Indiana machinist takes a dozen steps from his bench and buys a lunch of hot beef stew, a cup of coffee, and a slab of pie. A California business man enters an airline terminal and buys a pack of cigarettes, a carbonated beverage, and a $25,000 life insurance policy.

These are normal business transactions in all but one respect: No Willie Loman is required to make the sale. In each case, the customer stood in front of a mechanical merchandiser, selected items by pushing buttons, then received the product and the correct change—all in a matter of seconds.

Automatic merchandising today is a relatively small business—estimated 1956 sales of $2 billion are only a little over 1 per cent of total retail sales volume—but it is currently the fastest-growing method of retail distribution. And it promises to revolutionize the entire pattern of retailing.

Three products—cigarettes, candy, and soft drinks—account for more than 75 per cent of automatic vending sales. Twenty per cent of all candy bar sales, 16 per cent of all cigarette sales, and 25 per cent of all carbonated beverage sales are made through vending machines.

It is no accident that these three products, until now, have accounted for the lion's share of the sales volume. They are all impulse items, with high turnover and relatively low profit. They are all products that require no selling. A consumer knows what brand of cigarettes, candy, or soft drink he prefers. If the machine has that brand, he will buy. He has been pre-sold.

But growth potential of the industry lies in two fields that automatic merchandising is just beginning to explore—in-plant feeding and take-home retail sales.

The industrial cafeteria has long been a management headache. In plants operating three shifts, it is often impractical to keep it operating during the evening. In most cases, a management subsidy is necessary. And time spent going through the cafeteria line is considerable.

With vending machines supplementing—and in many cases replacing—the industrial cafeteria, many of these headaches are removed. Whether the plant is on one shift or three makes no difference to the mechanical merchant. The vending operator gets no subsidy; instead he pays a commission on gross receipts.

and generally it goes to the employees' welfare or recreation fund. Instead of walking through the plant to get in line at the cafeteria, the employee can often go to a battery of vending machines near his work area and get his meal almost immediately.

Currently, the variety of foods available in vending machines compares favorably with that offered by the industrial cafeteria. It is possible to buy hot canned foods, soups, pastries, hot and cold sandwiches, milk, coffee, and soft drinks.

The time-saving factor is working strongly for automatic in-plant feeding. According to a recent survey conducted by the Paper Cup and Container Institute, 80 per cent of production workers and 41 per cent of office workers in manufacturing plants get only 30 minutes for lunch. Many of them just don't have the time to go through the cafeteria jam. They do have time to buy a sandwich or can of hot food and a beverage from a vending machine.

This does not mean that automatic feeding will replace the cafeteria on a wholesale basis. It does mean, though, that industrial caterers will depend heavily on vending machines to supplement their cafeteria operations, and where the cafeteria volume is such that it requires too large a subsidy, automatic merchandisers will be substituted.

If the cafeteria presents problems to the factory manager, the coffee break is often the bane of the office manager's existence. While no official figures are available, it is estimated that about 35 million workers take at least one coffee break a day, and American industry pays for these coffee breaks to the tune of millions of dollars a year in lost man-hours.

The ten-minute trip to the downstairs drug store often lasts a half hour. The thundering herd that converges on the elevators at mid-morning and mid-afternoon can disrupt the office routine.

In some cases, management has attempted to solve the problem by having coffee sent up twice a day and footing the bill. This has proved fairly expensive to management and not entirely satisfactory to the employees. Sometimes an employee wants his coffee at 2, not 3 P.M. A coffee vending machine makes it available at all hours, at no cost to management and with a minimum time loss to employees.

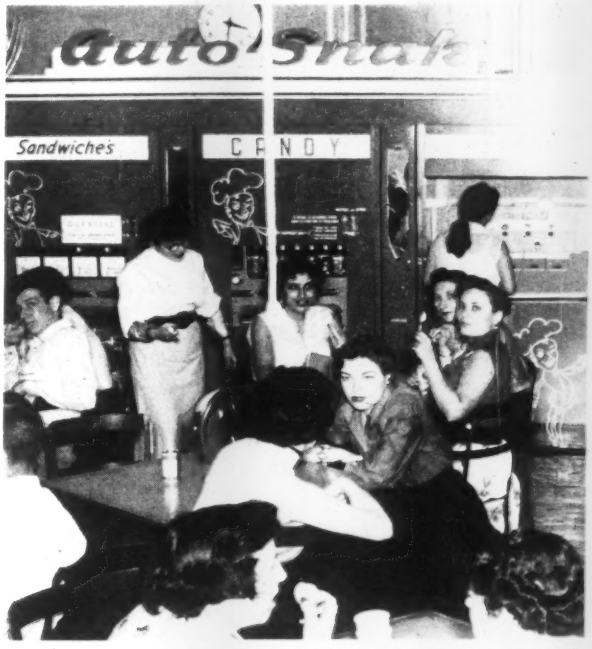
Coffee vending is still in its infancy. Machines vending soluble coffee were first mass produced in 1953, when 25,900 units were placed in factories, offices, and transient locations. The following year the figure rose to 37,200, and in 1955 it spurted to 60,100. Industry estimates for 1956 place it at nearly 75,000.

Latest development in the coffee vending field is the self-brew machine. Until 1956, all coffee vending

continued on page 100

Automatic dispensers solve the in-plant feeding problem in institutions, as shown by this installation in the basement of a hospital. Quick meals are available around the clock.

The mechanical milkman is cutting sharply into home delivery. The milk is 3 cents cheaper than the home-delivered product.



Production workers take their coffee break at a vending corner, with tables set up by management, instead of a local diner.

THE GAW, SMALL BUSINESS, AND LABOR MOBILITY

Both advocates and opponents of a full-blown GAW are agreed that it would affect the mobility of labor, and many believe too that it would have some impact on small business and on new enterprise specifically. Here is an evaluation of the major effects to be expected.

EDWIN B. GEORGE, *Director of Economics, Dun & Bradstreet, Inc.*

AMERICANS prize an economic climate that encourages new enterprise. A profusion of small- and medium-sized companies, it is felt, enables more people to exercise managerial initiative and makes for closer management-worker relationships. Another article of faith is that, if we can pry away a few of the obstacles now confronting the typical small outfit and add some facilities it cannot provide itself, it can maintain itself successfully in the face of competition from larger corporations. These ideas underlie the many proposals for aid to small business.

One possible development likely to have important repercussions on the chances of new businesses is the adoption of full-scale guaranteed annual wage plans of the type advocated by the Steel, Auto, and Electrical Workers' unions in the early 1950's. While unions have now accepted something considerably less—the present supplementary unemployment benefit plans—many leaders regard current provisions as stepping stones. They make no secret of the fact they hope to get much more later on.

What will be the effect on new businesses if they succeed? If full-scale guaranteed annual wage plans are widely adopted in the hard goods industries, will the change encourage or discourage a healthy growth of new enterprise? Or will it make no difference?

The problem has so many ramifications that a concise answer is not possible. But a reasonably good one can be found by appraisal of three interrelated aspects of GAW's influence: (1) its direct effects on new enterprise; (2) its more general effects on our industrial structure, including the indirect impact on opportunities for new business; (3) its effects on labor mobility—the willingness and ability of workers to shift from company to company.

Effect on New Businesses

Superior workers already have strong incentives—seniority, pensions, and so on—to stay put rather than go into business for themselves. GAW would add another one. People in minor executive positions who enjoyed GAW coverage or its equivalent would be affected in the same way. So would newcomers to the labor force, who may also have a choice between launching businesses of their own or taking jobs with established companies.

These pulls, of course, will vary with the GAW outlook for new companies. If a husky GAW must be borne from scratch, disinclination to start new businesses will be greater; and although workers will be more willing to shift jobs if they need only worry about the employer's ability to fill his commitment, the net dampening effect on initiation will probably be larger. But even if the guarantee can be assumed gradually, it will greatly increase the risks.

Insofar as outside equity capital is essential, budding entrepreneurs will face another hurdle. The prospect of having to underwrite guarantees is likely to deter investors more in the case of new ventures than in that of going concerns.

As a rule, also, reluctance will not vanish if and when new concerns finally obtain a lease on life. After they have secured enough foothold to risk a real jump forward—toward expansion that will permit operation on the most economic scale—they will have difficulty getting new capital from outside sources. Typically the small company needs more new money at this point than at birth.

Effects of these depressants will naturally be felt more by new ventures that involve highly risky innovations than by companies organized for run-of-the-mill output. Yet risky innovations are the lifeblood of a healthy competitive economy.

On several counts, then, direct effects of GAW on the birth and growth of new enterprises will be adverse, costing society the benefit of their success.

Offhand, it might seem that the over-all effects on the hard goods industries—where the demand for GAW has been insistent—would be relatively modest. If general prosperity continues, some may think, changes in industry structure will arise primarily from attempts of GAW companies to reduce seasonal unemployment. And seasonal swings are not large enough to warrant much in the way of corrective efforts, nor is GAW likely to encourage those efforts (DR&MI, December).

But the unemployment problem in hard goods lines extends far beyond anything traceable to seasonal factors. There is, first of all, "frictional unemployment"—notably the temporary unemployment of those moving from job to job. Like others, hard

continued on page 76

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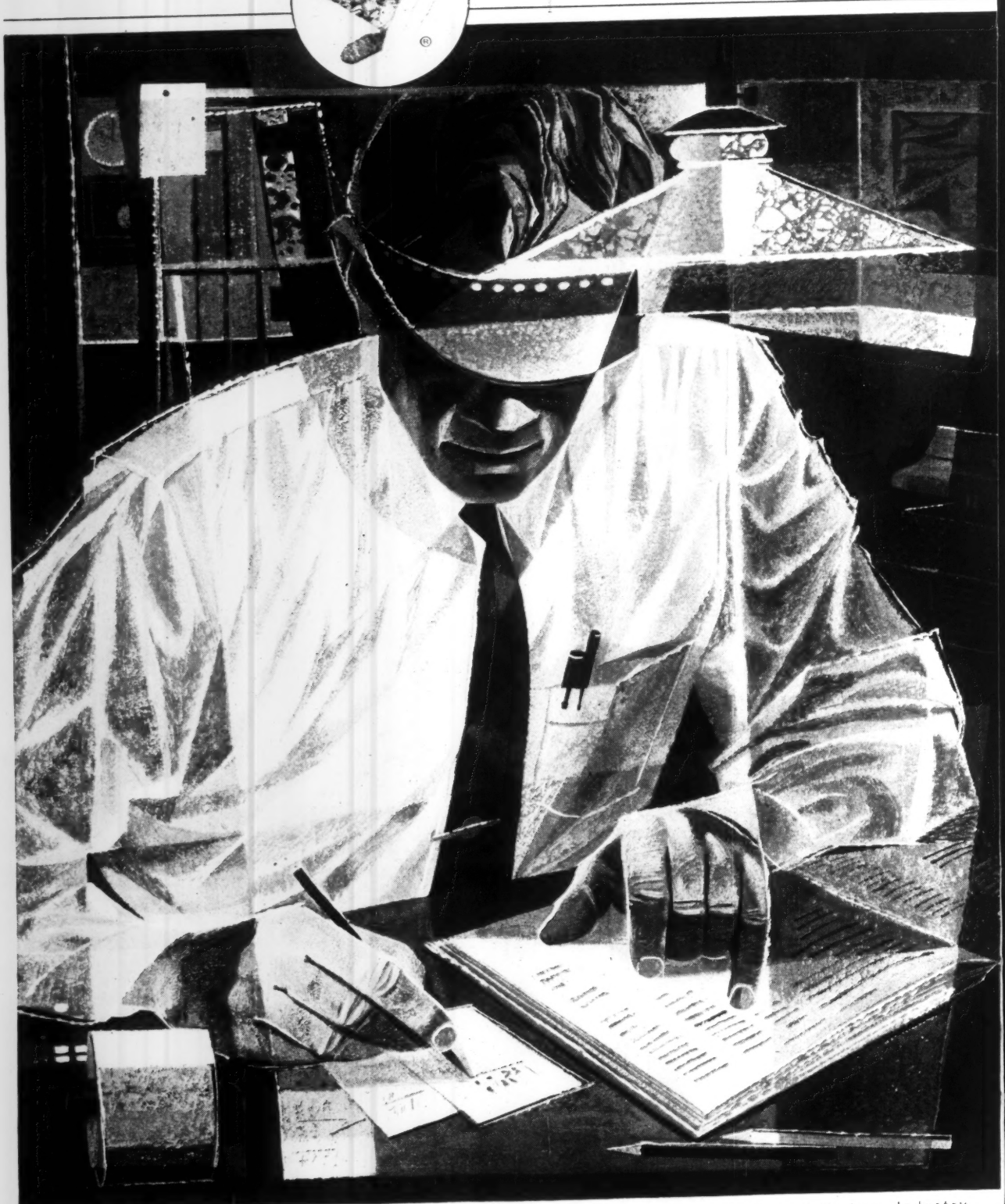

We made sure the money was there

From every angle the town seemed ideal for the large industry we were trying to locate. Just one consideration gave us pause:

The new plant would mean a considerable increase in population. To serve the newcomers, the town would have to have new schools. It would have to extend water mains and sewers. It would have to pave more streets.

Could the town afford to provide all these added facilities?

Before we did anything else, we sent in one of our experts to make a study of the town's credit. What was its bonded indebtedness? Its tax rate? Its assessed valuation?

His investigation showed the town finances were in excellent condition. So next we talked to the members of the Town Council. Would they be willing to spend the money? They assured us they would.

With us it is routine to try to visualize all the possible effects of a new industry and a community upon each other, and to avoid possible sources of conflict.

When you ask for help from the Chesapeake and Ohio Industrial Development Department, you are enlisting the services of a team of specialists. We think you will be pleasantly surprised at the thoroughness of our research, and the amount of pertinent information we can round up.

Write for new booklet describing industrial resources and opportunities in C&O territory. Address: Wayne C. Fletcher, Director of Industrial Development, 3203 Terminal Tower, Cleveland 1, Ohio.

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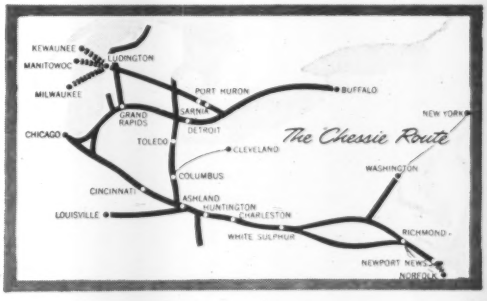

manual, oil or air-actuated ...for unbiased* friction clutch recommendations, consult Twin Disc!

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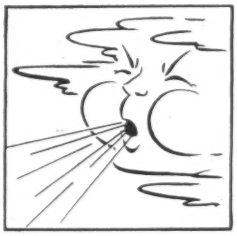

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**Unbiased recommendations* . . . because whether your operation calls for a manual-, oil-, or air-actuated clutch, all are available from Twin Disc. More important, Twin Disc also makes a complete line of fluid drives, including torque converters—both single-stage and three-stage—for applications from 30 to 1000 hp . . . as well as fluid couplings for engines and motors from ¼ to 850 hp. For every industrial power transmission requirement—friction or fluid—consult Twin Disc *Specialists*.

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MOTIVATION . . . *continued*

Wulfeck points out, is purchasing behavior in heavy industry.

It's true, of course, that industrial promotion must be on the whole more objective and factual than promotion for consumer products. Purchasing agents are supposed to choose scientifically, striving only to obtain the best possible value for their corporate dollars. Yet they are still people, subject to the same psychological pressures as other buyers. Often they can obtain the same product at the same price from several companies; in this case the choice may well depend on how the company—and its salesmen—look to them.

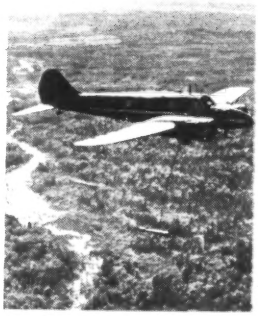
A Chicago advertising agency conducted a customer relations study for one of its clients, a large company supplying manufacturing concerns of all sizes. On the surface, the company seemed to have a fine reputation. Purchasing agents said that its products were good, its prices and policies fair. They praised the firm's contributions to technology.

But, when asked to speculate on what *other buyers* might say about the company, the small customers revealed a fair amount of hostility. They said others might see condescension in the large company's advertising, and in the attitude of its salesmen. They seemed to feel that the company only tolerated small companies as customers, that it was not really interested in their problems.

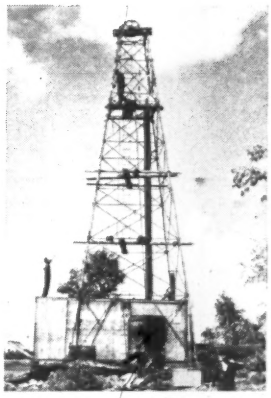
For the sake of prestige, the company had centered its advertising on its achievements in solving technical problems for industrial giants. The salesmen, too, had been guilty of industrial name dropping. As a result, they had alienated an important market.

Purchasing—particularly for others—involves some anxiety whether one has made the right decision. Perhaps that's why purchasing agents and engineers, once they have decided on suitable materials or methods, tend to stick to them and to resist new ideas.

A new synthetic material was developed—one that can be pressed or molded and that can, for some purposes, be used in place of steel. It has special advantages, such as the fact that machine gears made of it require no lubrication. The material was advertised in trade journals.



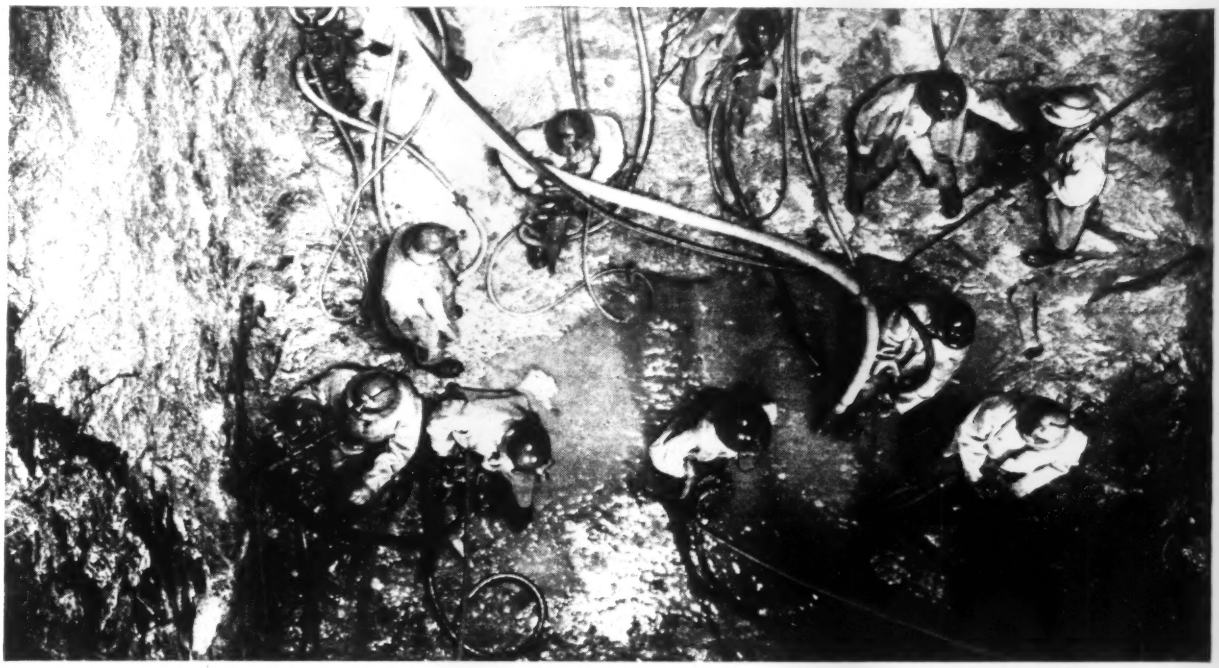
1. How these mines were discovered—For years Inco-Canada used air-borne devices to scan vast areas. The *possibilities* of ore deposits in this area suggested further exploration.



2. How ore bodies were probed—Diamond drills then began bringing up samples of rock and ore from underground; another step toward exploring the size and location of ore bodies.

Inco shows how a Nickel mine is born

New mines in Manitoba will help add over 100 million pounds to Nickel output



3. How exploration shaft was sunk. This was the toughest job of all. Only a few men could work at a time. Their air-powered drills could drive only a few feet a day. After each blast, the *exploration* shaft was scaled and shattered rock mucked out—long hours of work between each round of drilling. Later *production* shafts will also be sunk; then crosscuts and drifts driven to reach the ore deposits. *Only after these are completed can mining of Nickel ore begin.*

Ten years and ten million dollars ago, Inco-Canada launched Exploration Project Manitoba.

Purpose of the project: to discover new deposits of Inco Nickel, new sources of mineral wealth deep in the woodlands.

The exploration project having revealed sufficient ore to warrant mining, Inco-Canada will now develop its new underground mines and processing plants in Mystery-Moak Lakes area of northern Manitoba, Canada.

To get them into production calls for a new railway, townsite, power plant, schools, hospital. This $175,000,000 project is part of an Inco-Canada four-year expansion program expected to help add over 100 million pounds a year to over-all Nickel output.

Mining for Nickel, a color film, shows step by step how Nickel mines are discovered, developed and expanded. It is loaned to technical societies, universities and industry. Write to Dept. 11f,

The International Nickel Company, Inc., New York 5, N. Y.

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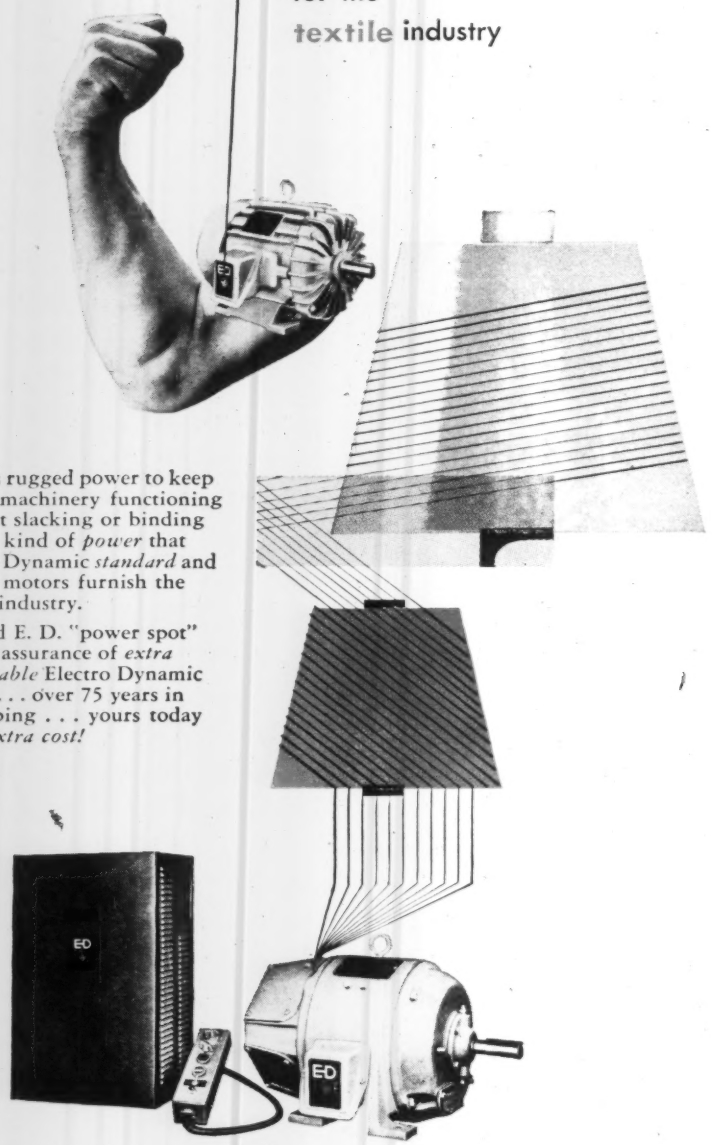
The International Nickel Company, Inc., is the U. S. affiliate of The International Nickel Company of Canada, Limited (Inco-Canada)—producer of Inco Nickel, Copper, Cobalt, Iron Ore, Tellurium, Selenium and Platinum, Palladium and Other Precious Metals.

The mark of an Extra Dependable machine

POWER
for the
textile industry



It takes rugged power to keep textile machinery functioning without slacking or binding . . . the kind of *power* that Electro Dynamic *standard* and *special* motors furnish the textile industry.

The red E. D. "power spot" is your assurance of *extra dependable* Electro Dynamic power . . . over 75 years in developing . . . yours today *at no extra cost!*

ELECTRO DYNAMIC
DIVISION OF GENERAL DYNAMICS
CORPORATION

BAYONNE, NEW JERSEY

A market study revealed that design engineers feared that gears made of this product would lack sufficient tensile strength. Actually, they knew that the product had sufficient tensile strength, but they knew also that it had less tensile strength than steel. Subconsciously, they confused *less* tensile strength with *insufficient* tensile strength.

It was found, also, that engineers who had talked to salesmen about the product knew more about its special qualities than those who had only seen the advertising. The advertising copy was changed so as to emphasize the properties of the material.

Today's buyer, whether consumer or industrial, has more money to spend than ever before, for a wider variety of products. But competition is so keen that even necessities must be promoted. Motivation research offers one method of getting a larger share of the market by relating products, package, and promotion more closely to consumer attitudes and needs.

There are many techniques for probing hidden causes of buying; new variations are continually devised. Basically, the approaches include: (1) rambling, undirected or semi-directed interviews, often called "depth" interviews; (2) indirect questioning techniques, which include word association and sentence completion as well as the "projective" techniques (to be discussed later on); (3) direct studies of behavior; (4) ingeniously constructed questionnaires and statistical analysis of the answers. Lie detectors have been used to gage reader reaction to advertising; hypnosis has been tried, with fair results. One consultant bought a hardware store in Tampa in order to study consumer behavior, and the relationship between advertising and merchandising, at first hand.

Word association, one of the simplest and oldest techniques, is used effectively in coining names and inventing slogans. A list of words—including key words being tested—is read to the person interviewed. After each word, he answers with the first word that comes to his mind.

James M. Vicary, market analyst, made an unusual finding based on this technique: Over a twelve-month period, he had researchers ask women to respond to the word "season." He found that, for women at least,

psychological seasons arrive earlier than calendar seasons, and are of quite unequal length. Spring is uppermost in most women's minds for almost five months, January 13 to June 6. Summer lasts three months, June 7 to September 6; Autumn from September 7 to November 16; and Winter, the shortest season, from November 17 to January 12. The survey, financed by *Family Circle* magazine, suggested that promotion addressed to women should be geared to psychological rather than calendar seasons.

MOTIVATION RESEARCH MAY BE HELPFUL

in these fields

- Consumer promotion
- Industrial promotion
- Package design
- Product development

when you want to

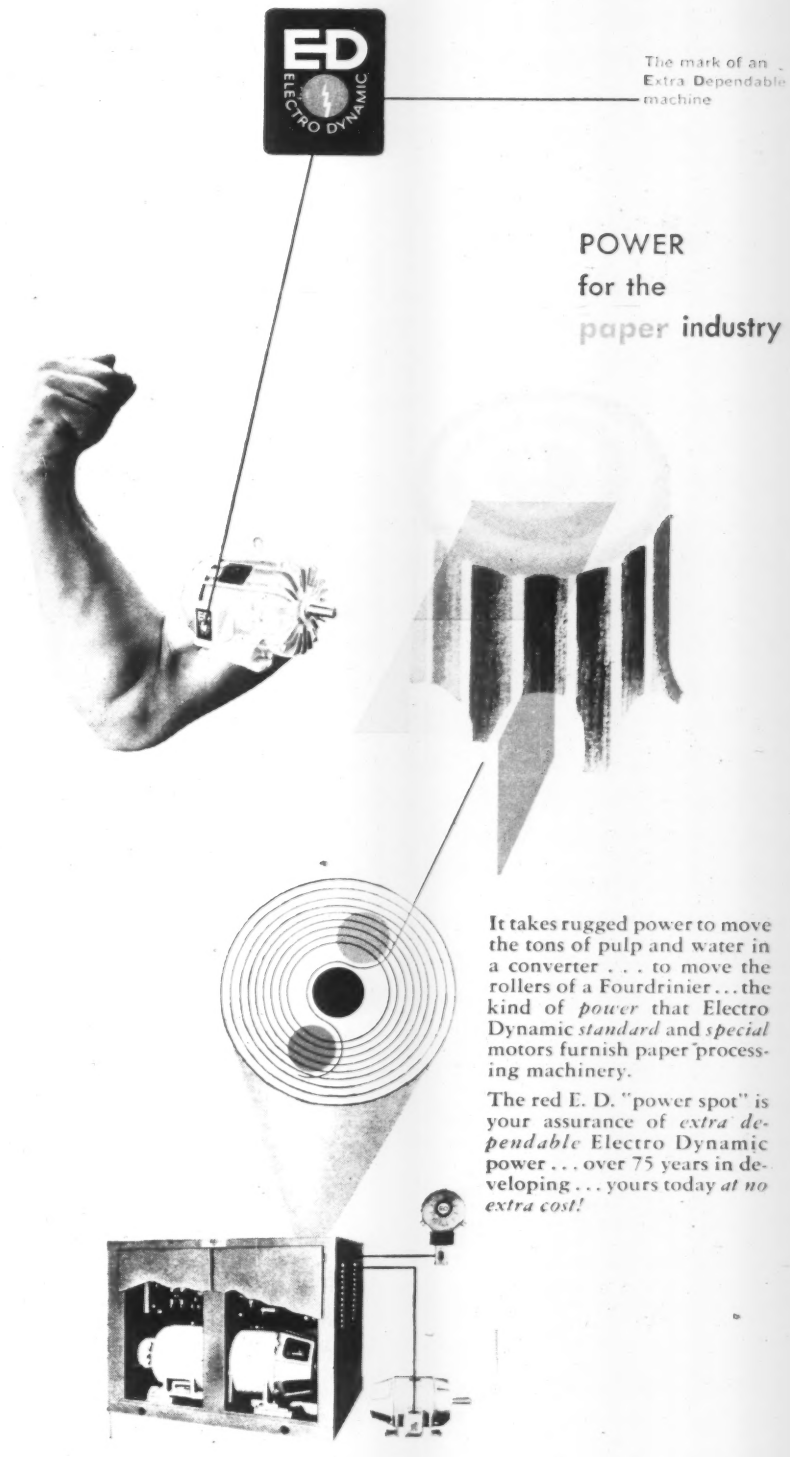
- Probe hidden reasons for buyers' attitudes and behavior
- Find fresh promotion ideas
- Test the appeal of a name, a taste, a color, a promotion theme

but don't try to

- Use motivation research as a panacea for all market troubles. Poor sales of even a good product may be caused by such obvious factors as ineffective distribution, insufficient promotion, or inappropriate pricing.
- Employ a researcher without proven competence to understand market problems as well as psychological problems.
- Accept esoteric or unusable findings.
- Generalize too broadly from small samples. A small sample can be conclusive if the sample is typical of your customers and if the findings all point one way. But where findings indicate several possible conclusions, further research may be necessary to establish which are the most important for your purpose.

The name for A.T.&T.'s projected service, "Direct Distance Dialing," was selected from ten proposed names by word association tests. "Customer Toll Dialing," a runner-up, was eliminated because it suggested cost to too many people.

Projective techniques are ingenious methods of getting people to reveal their own feelings while ostensibly talking about someone or something else. The person interviewed may be shown a picture and asked to tell a story about it, or to supply some of the dialogue. Or he may be asked to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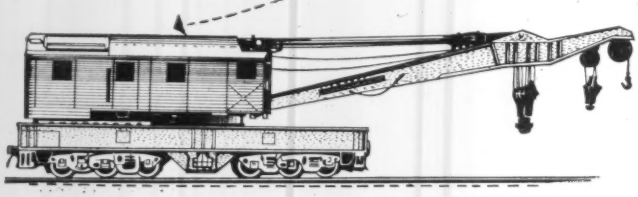
The mark of an Extra Dependable machine
POWER
for the
paper industry
It takes rugged power to move the tons of pulp and water in a converter . . . to move the rollers of a Fourdrinier . . . the kind of *power* that Electro Dynamic *standard* and *special* motors furnish paper processing machinery.
The red E. D. "power spot" is your assurance of *extra dependable* Electro Dynamic power . . . over 75 years in developing . . . yours today *at no extra cost!*
ELECTRO DYNAMIC
DIVISION OF GENERAL DYNAMICS
CORPORATION
BAYONNE, NEW JERSEY
GD

we handle the "HEAVY"

The heavy, or villain, in the old-time melodrama was always taken care of in the last act.



Here at Industrial Brownhoist we produce equipment that handles heavy materials with equal dispatch—but without suspense or delay.

Whether your heavy materials handling problem calls for locomotive cranes, coal or ore bridges, unloaders, standard or special buckets, or other equipment, you can depend on Industrial Brownhoist for an economical solution.

Our nearest representative knows how to help you. Or write direct to Bay City, Michigan.

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AGENCIES: Detroit, Birmingham, Houston

BROWNHOIST

describe how an imaginary person would behave.

Dietz Leonhard, market research director of a small Iowa firm, Tidy House Products, set up a projective test to determine the colors for two new household cleansers.

The interviewer showed the housewife a picture of two women, one of them pointing to an advertisement for a new cleanser: "Now she goes to the grocery and sees these two bottles. [The interviewer puts two bottles on the table.] She buys *this* bottle [an orange one] instead of *this* bottle [a blue one—they're alternated in successive interviews]. Now, why do you think she did that?"

The housewives' reactions ranged from "She did just right" to "It's too strong (or too weak); she should never have bought it." Though the bottles were tightly stoppered, the women sometimes added: "This smells good," or "It smells too strong." A decisive majority of women favored the blue bottle for one type of cleanser, the orange bottle for the other. Also, the interviewers learned what housewives wanted from each cleanser—information that provided valuable hints for advertising.

Yet in previous tests when women were asked directly which color they preferred, the result was an even split, with vague reasons for preference and no clues for promotion.

Through study of drawings like those on page 53, researchers have learned consumers' attitudes toward money, toward liquor, toward various makes of automobiles. The house-tree-person test was done by mail, as part of a study for a cigarette company. Those questioned were classified into three groups: regular smokers of mentholated cigarettes, occasional smokers, and smokers of non-mentholated cigarettes. Without further clues, a psychologist was able to tell which group was which, and could also advise the company on copy appeals that would be effective with each group of smokers.

Direct observation of behavior was used in a study of consumer attitudes toward hand lotion. About half the women observed rubbed the lotion in energetically, like medicine. The other half applied it slowly, methodically, with caressing motions. They considered hand lotion a cosmetic—and they bought three times as much of it as their more energetic sisters.

Direct questioning is not usually

thought of as a motivation research technique. Yet direct questioning with a carefully designed questionnaire has revealed hidden causes for behavior.

Immediately after the second War Bond Drive, the Institute for Social Research of the University of Michigan was commissioned to conduct a survey among bond buyers. Close to 2,000 persons were asked how many bonds they had bought during the drive, how many they would have bought ordinarily, why they bought the extra bonds. They were asked also if they had been personally approached to buy more bonds. Most people gave only patriotic reasons for having increased their purchases. Yet, when the data were analyzed, it became clear that personal solicitation was an important factor: Four times as many of those specially approached as of those not approached had increased their bond buying.

Personal solicitation was stepped up in the third drive, and the number of bonds sold almost doubled.

Alfred Politz, a market researcher with blue-chip clients, used a similar technique to probe drivers' ideas of "quick pick-up." It had been noted that a driver usually has an opinion about the pick-up of his car, even though he is not in a position to know the facts. Politz surmised that the feeling of fast or slow pick-up might be related to the amount of effort needed to push the accelerator.

An interview was devised in which drivers were asked whether their cars had good pick-up. Also, the cars' ease of handling was discussed—steering wheel, gear shift, brake, accelerator, and so on. It developed that, among motorists who said it was hard to push the accelerator, only 26 per cent said their cars had good pick-up. Among motorists who said it was easy to push the accelerator, 61 per cent gave their cars credit for good pick-up.

But engineering data showed no relationship between the stiffness or softness of the accelerator spring and the speed of acceleration. It was concluded that a soft accelerator spring tends to convince the driver that his car has good pick-up, whether or not this is a fact.

Consultants often combine a number of approaches, in order to cross-check their findings. A single test may include sentence completion, word association, and a depth inter-

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Takes a boss
less than half the time formerly needed to answer his mail

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Only $148 . . . that's an unheard-of low price for an office copier. *An incredibly low price* for a Verifax Copier, which does so many jobs beyond the scope of ordinary copiers. For example:

☐ **Signet makes 5 copies in 1 minute for 2½¢ each.**

☐ **Nothing is ever left out** on Verifax copies—they're photo-exact from letterhead to signature.

☐ **Photo-lasting.** Verifax copies are as long lasting as any business record.

☐ **Signet makes copies on preprinted office forms,** on card stock and film—and on both sides of copy paper.

☐ **Makes a translucent "whiteprint" master** for use in direct-process and blueprint machines.

☐ **Makes an offset plate in 1 minute** for less than 20¢, with low-cost adapter.

Price quoted subject to change without notice.

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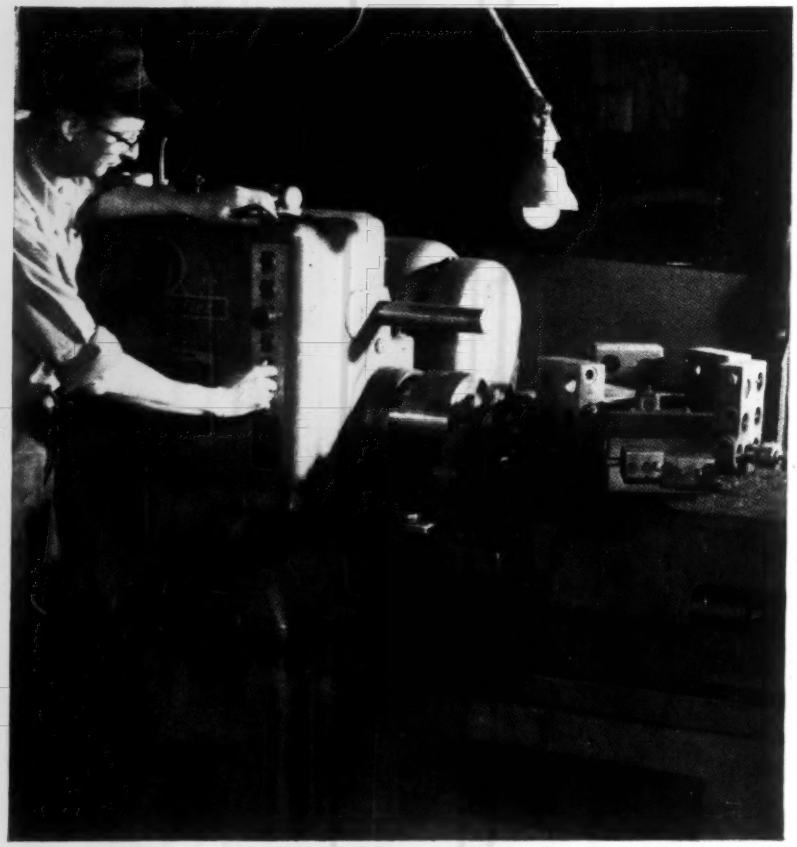
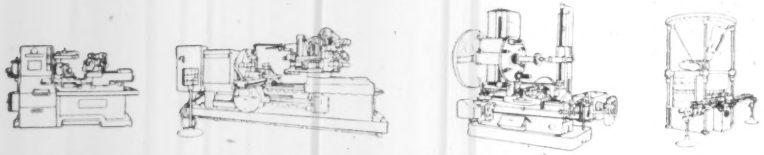


(PHOTO COURTESY OF YORK CORPORATION, YORK, PENNSYLVANIA)

SAVED 85% . . .

. . . OF MACHINING TIME ON ONE PRODUCTION RUN, 55% on another, and *more* than paid for itself in *just one year!* These are the facts the York Corporation reports about the Potter & Johnston 3-U Automatic Turret Lathe purchased as a cost reduction measure. Success stories like this typify the cost-saving performance that manufacturers everywhere have come to expect when they replace with truly modern P&J Automatics, designed and built to meet today's *and* tomorrow's production needs! And there's a P&J Automatic Turret Lathe for every work size requirement. Write for complete information. Potter & Johnston Company, Pawtucket, Rhode Island.



AUTOMATIC TURRET LATHES . . . GEAR CUTTERS . . . GILDA PACKAGING MACHINES

P&J

POTTER & JOHNSTON

SUBSIDIARY OF PRATT & WHITNEY COMPANY, INC.

PRECISION PRODUCTION TOOLING SINCE 1898

view started by showing the interviewee a picture or a story and asking him to talk about it.

The motivation study may be preceded by a broad market survey. Or motivation research may be used as a pilot, to aid in framing questions for a large-scale survey. There is no single "best" technique or procedure. A competent consultant uses those approaches that, in his judgment, best fit the situation.

A small study may turn out to be adequate. In a Colgate-Palmolive-Peet survey of how women felt about laundry soap, 24 of the first 26 interviews pointed in the same direction. The company felt this was conclusive.

A small sample may also be satisfactory for industrial promotion, because the entire number of potential customers is relatively small, and these customers are more alike in their thinking than the population at large.

In a study for General Electric's DC Motor and Generator Department, the Institute for Motivational Research interviewed only 176 engineers, consultants, technicians, and executives. The purpose: To find out why, in view of the widely advertised advantages of direct current motors for industrial uses, more companies weren't buying them. The principal findings: Acceptance was being slowed by a time barrier. To many persons, direct current was associated with old-fashioned methods, and with early ways of producing power. These findings were translated into a campaign pointing up the *modern* trend to DC motors.

But a single small-scale study will not often be adequate to settle a broad problem in consumer marketing. A soft drink company had to decide whether or not to make the considerable investment of introducing large bottles for home use. It was known that some buyers preferred the traditional small bottle; it was known also that others did not buy the soft drink for home serving because the small bottles were too much bother. Would the new size step up sales sufficiently to justify its cost? It took a large-scale survey, plus market testing, to make sure it would.

The three principal areas for motivation research in product promotion are promotional strategy, particularly advertising; product development;

and package planning. (Studies are made also of consumer buying intentions, of retailing methods, of employee, customer, and public relations.)

Psychological testing is no substitute for having a good product, for knowing the market, or for aggressive promotion. But these methods do frequently succeed where standard market research has failed in finding out, for example, why consumers favor one of several brands of a product when all are essentially alike; what qualities, or what associations, cause a product to stand out; which of several tastes, smells, colors, or trademarks have most appeal *in promoting a specific product.*

These are subjects on which it is dangerous to generalize. The fact that a certain color or package design sells one product by no means guarantees it will sell another.

Lux Soap has scored tremendous gains in its gold foil package, and foil is used in packaging a number of other successful grocery and cosmetic items. It might be assumed that foil is the magic key to success in packaging. But Louis Cheskin, the Chicago color consultant who performed package tests for the Lux foil wrapper, has reported that several other foil wrappers tested did not do so well as the former paper wrappers.

In tests for Marlboro cigarettes, a crest design on the package won decisive preference, he added, but in the Lux tests, a foil wrapper with a crown design was a failure.

Studies are frequently made of the effectiveness of radio and TV commercials. The Ogilvy, Benson, and Mather advertising agency found that an announcer's accent can make a tremendous difference in what listeners learn from a food commercial. Four excellent announcers were available. One was British, one had a "general American" accent, a third hailed from New England, the fourth from the South. All four made tape recordings of an identical commercial, giving tips on tea preparation.

Researchers played three recordings at a clip to listeners in various sections of the country, then asked: "Which one gave you the best advice about the product?" Strange as it seems, listeners thought the commercials were different, felt that the voice they most trusted had given them the best advice. Almost everyone "learned more" from one an-

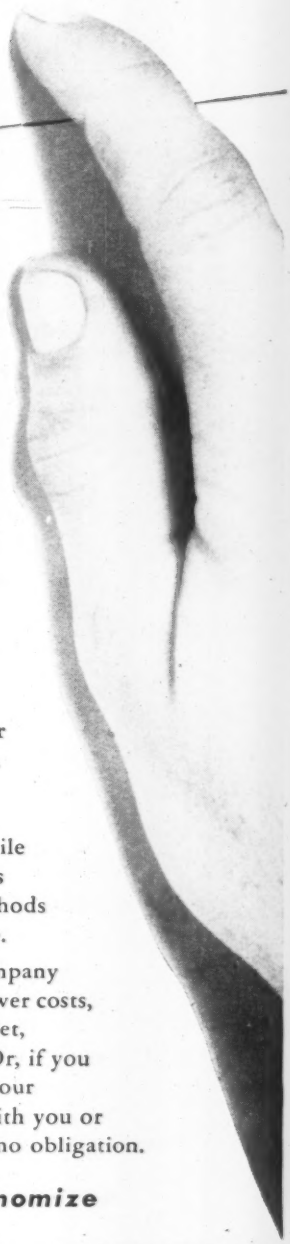
NET SALES $ 4,983,538.40

COST OF GOODS SOLD

Materials 2,421,999.66

Labor & Factory Costs 1,614,666.44 $ 4,036,666.10

GROSS PROFIT $ 946,872.30



could it have been higher?

Perhaps so. Profits often depend upon how well "in-process" losses can be avoided. One important item frequently buried in the "Operating Cost" is the amount spent on wasted materials, man-hours, rework and machine down-time. This is always a variable, but one now yielding to newer control systems.

The Magnaflux nondestructive testing systems provide new production tools. Their use enables manufacturers to stabilize quality. They are used at all stages of "in-process" operations. Regardless of plant size, most manufacturers can achieve definite, worthwhile savings by using low-cost M testing systems to pinpoint early defects in materials and methods — and to eliminate the cause and the waste.

For specific information on how your company can produce consistent quality products at lower costs, write for your personal copy of our booklet, "LOWER MANUFACTURING COSTS." Or, if you prefer, we'll be happy to arrange for one of our experienced Magnaflux engineers to meet with you or your men in person. Name the date, there's no obligation.

To test is to economize

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nouncer than from another. The general American voice won acceptance over the regional voices, even in New England and the South. It was also considered more trustworthy than the voice with the British accent.

What are the costs of motivation research? Costs to investigate a particular problem may vary widely: all the way from, say, $200 for a consultation to $25,000 for an exceptionally broad and detailed study. If psychiatric techniques are used, the cost *per interview* will be perhaps $5 to $25 (though in some cases it can hit as high as $100), as compared with $1–$10 for a conventional questionnaire. However, the questionnaire technique requires a larger sample, which will probably bring *total* costs for the two methods more into line. As in all research, the cost of the study must be weighed against the probable or possible gains.

Nothing is less standardized, for example, than the cost of results from advertising. A split-run test on hospitalization insurance showed a cost of $5.70 per query from a scare appeal, as compared with $1.36 per query from an advertisement stressing benefits. Research on these copy themes might have saved the company far more than it would have cost.

The choice of a motivation research consultant should be made with caution. It's a boom area, with many would-be experts rushing in, not all of whom are properly qualified. Neither a string of degrees nor an impressively incomprehensible vocabulary should be considered a guarantee of competence. The consultant must understand market problems as well as psychological problems. The best guarantee is a record of practical and successful studies.

A business man unacquainted in this field can ask business associates for recommendations. He can also seek the advice of his advertising agency and of marketing and advertising associations and foundations.

Aside from the solution of immediate problems, the injection of social science techniques may have interesting side effects on a concern's marketing philosophy. A. R. Graustein, marketing research director of Lever Brothers, said recently:

"I would like to pay my respects to the motivation researchers for their contribution to a better understanding by business executives of people in general—that is, of people other than executive wives, business associates, and other atypical individuals who represent his normal social contacts. Motivation research and its practitioners have made a great contribution in giving all of us a better understanding of the public's aspirations, methods of thinking, and reactions. This, I believe, is a very constructive development for all management people, and one which is inevitably leading to better marketing methods and better understanding of the advertising and merchandising processes."

ANSWER TO CARTOON QUIZ, PAGE 53

How Do They Feel About Money? Persons who underestimate the size of coins, as in picture A, are more likely to value money for its own sake; they like to save and accumulate to be protected against what the future may bring. Those who overestimate the size of coins, as in B, are less cautious, more expansive, more inclined to associate money with the things it can buy, such as vacations, gifts, and other pleasures.

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A Research Laboratory completed by Wigton-Abbott for Hoffmann-La Roche, Inc. at Nutley, New Jersey

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"National Accounting Machines save us $20,000 a year... return 67% annually on our investment!" —MARATHON CORPORATION, Menasha, Wisconsin

"Research is the key that keeps our Company ahead in the rapidly expanding pulp, paper, and paperboard industry.

"Because Marathon is 'many businesses in one,' our accounting requirements are complex. After a thorough research, we decided upon Nationals to meet our particular accounting needs.

"National Accounting Machines save us $20,000 a year, returning 67% annually on our investment.

"We use Nationals for control of Payroll, Accounts Payable, Distribution and General Ledger. Their versatility is amazing. We plan to adapt their facilities to produce even greater savings."

Emmett W. Below
Controller, Marathon Corporation

In your business, too, National machines will "pay for themselves with the money they save...then continue savings as annual profit. Your nearby National man will gladly show how much you can save and why your operators will be happier.

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ACCOUNTING MACHINES
ADDING MACHINES • CASH REGISTERS

EXECUTIVE STAFF AND DISTAFF

A Wives'-eye View

Group of young executive wives hammers out rules for woman who wants to help her husband up the managerial ladder—and it looks as though she has her job cut out for her. Here are the do's and don'ts they agreed on.

ONE executive's wife put it this way: "It's legalized bigamy. You marry the man and his job." Management looks searchingly at the home life of the young executive of promise, and the lady of the house is getting self-conscious about her key role in aiding or retarding her husband's advancement. There is an old motto to the effect that for every man who makes his way in the world there is a woman pushing from behind. She may be as conspicuous as a fussy little tug shoving an ocean liner against the tide, or as inconspicuous and quiet as the breeze puffing into the canvas of a schooner. In choosing its men, industry is making a pragmatic application of *cherchez la femme*, and the method gets more procedural and scientific every day. The ladies have become aware of their significance in the competitive effort for better executive jobs for the men.

Management has always looked on the woman of the house as an important, sometimes controlling, factor in a man's forward movement in a company. Many a big boss has once-over'ed the young wife at a social evening and examined her sphere of influence before giving the junior executive added responsibility. The only thing new is that the practice is now accepted as a routine part of the selection and development of promising high-level personnel.

At a recent management clinic conducted by George Fry & Associates, one subject was "Responsibilities of Mrs. Executive," with the wives of six young executives participating. Out of the discussion came the checklist of "characteristics of today's successful business wife" reproduced on page 74. Few of these apply to the career wife, who occupies a radically different status; they are the qualifications needed by the executive spouse who is called upon to shape her mind, attitude, temperament to her husband's forward movement in the company. If the wife of the executive plays second fiddle, she adds a vital note of harmony to the string ensemble of husband, boss, stockholder, and customer.

Among the most important questions under discussion at the clinic were these: How much should the executive's wife know about the company and her husband's job? How much of company policy should he tell her? When should a company secret be shared, if ever? How much can she advertise the company and its products to her friends and neighbors without getting involved in gossip about company policy and personnel?

There is the eternal tension between the female impulse to chat and the necessity of keeping names and incidents out of the idle chatter. The panel established the fact that it is necessary and desirable for the wife of the executive to know her husband's business, "its general organization, its key personnel, and the staff with whom he works."

The degree to which she enters her husband's business life often depends upon the nature of the business and his assignment. There may be a big difference in the activity of the research engineer's wife and that of the wife of the sales manager. One man may be away from home 10 per cent of the year, and the other 40 to 60 per cent as he jumps from branch to branch or market to market. All agree on one item: Hubby's office is out of bounds for the missus and her problems.

To what extent should the wife of the executive enter the social whirl of her husband's life, entertaining associates and customers? Some girls have more talent for public relations than others, and are gifted with a native tact in dealing with the brass. Some have the ability to buff the boss with an odd compliment without resorting to bold flattery. Others have this subtler gift: They can hand the brush-off to customers in their cups, and to the free-wheeling boys who don't know when they've worn out their welcome, without hurting anyone's feelings. The girls often develop a real skill in dealing with official guests, expected or unexpected, and making them feel at home.

One of the touchy subjects is "other women." Here is where current data, a lot of candor, and a little consideration are more desirable than envy, sulking, or grousing. For better or worse, "other women" are in business, and at various levels of authority. Many women executives think like men, but they also act like women at times, especially under the relaxing influence of a social atmosphere. The executive wife must be the understanding and trustful diplomat, and swallow her indignation when the inept remark is made or the embarrassing question is asked. She is most helpful, too, when she knows hubby's secretary, and coordinates the home and office schedule so that there is proper balance

continued on page 73

Keep deliveries on time! (His boss has The Hertz Idea)

What do you deliver? Whatever it is, you can help yourself to the most dependable delivery service when you lease trucks from Hertz!

Hertz long-term truck leasing service affords all the advantages of private ownership without the worries. It provides complete release of capital investment. Hertz pays full cash value for your present trucks and replaces them, when necessary, with modern GMC or other sturdy trucks. That's The Hertz Idea!

What's more, Hertz furnishes trucks engineered for the job, properly insured, expertly maintained, painted and lettered to your specifications, washed, gassed, greased, oiled, garaged—in fact, Hertz furnishes everything but the driver!

You only pay for trucks you need, thus, waste of idle trucks is ended. And when an extra is needed, it is provided immediately. One weekly bill gives a complete, accurate cost record. Overhead goes down. New tax advantages result. So call us. A free survey of your truck needs is available on request. We're listed under "Hertz" in *alphabetical* phone books everywhere! Hertz Truck Lease Service, 218 South Wabash Avenue, Chicago 4, Illinois.

Hertz furnishes modern trucks of any type or size!

Most experienced...by far

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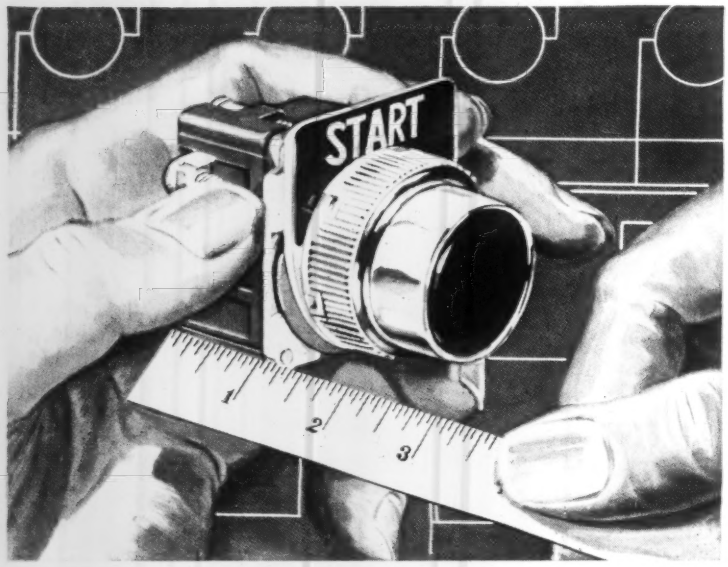
Truck lease service

Machine designers say these new heavy duty pushbutton units have no equal and prove it by adopting them as standard equipment



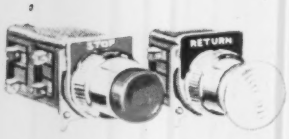
These are the world's smallest heavy duty pushbuttons. They require a behind-the-panel depth of only 1 3/32". This is 40% less space than needed by the next smallest units on the market. Double-pole contact blocks are available in all combinations of normally open and normally closed contacts. Each control circuit is electrically and mechanically isolated from the other. Each circuit is clearly identified and all terminals are color coded. Rapid on-the-job circuit additions are obtained by stacking contact block on contact block.

☆ *they install easier*

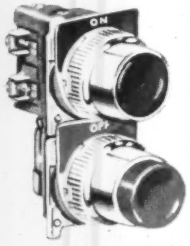
☆ *they work better*

☆ *they last longer*

Design engineers are quick to recognize that these new heavy duty pushbuttons have *everything*. There is nothing on the market like them. They are amazingly compact to require the least back-of-panel depth. They are one-hole mounting and they are oil tight. They easily provide for as many as eight separate control circuits per pushbutton, eight completely isolated heavy duty contacts either normally open or normally closed. The buttons may be flush type, the extended type or with mushroom heads. They can be black, red, yellow, green or gray. See the new one-button control station, C-H Roto-Push. See the easiest-to-install maintained-contact pushbutton attachment and the means for padlocking any of the standard pushbuttons. There are both knob and key operated selector switches in this complete line. Also matching indicating lights and the new automation safety light, PresTest. Be sure you have complete information *now*. Write today on your company letterhead for a copy of the new Cutler-Hammer Pushbutton Handbook Pub. EL-178. CUTLER-HAMMER, Inc., 1259 St. Paul Ave., Milwaukee 1, Wisconsin.

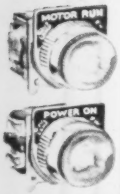


These pushbuttons may be flush type, extended type or with mushroom heads . . . in a wide range of colors for quick control identification. Standard large, and jumbo size legend plates fit every type of operator and indicating light in the entire line.

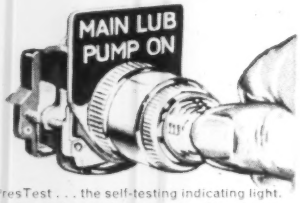


A maintained-contact pushbutton assembly that saves more than its entire cost by installation savings. New attachment with its pushbuttons mount in minutes; no fussy adjustments. Neither alignment nor spacing of units is critical. Pushbuttons will not bind or stick; always operate perfectly.

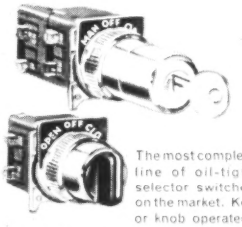
CUTLER-HAMMER
☆ ☆ ☆
MOTOR CONTROL
C-H



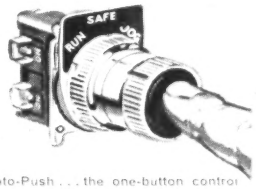
The C-H one-hole mounting oil-tight indicating lights with new wide-visibility lenses are the most visible from all angles by actual light meter tests. Available in either transformer or resistor types. Lenses offered in six different colors.



PresTest . . . the self-testing indicating light. Vital to safety and proper use of machines, particularly in automation. PresTest now permits instant proof light is NOT off because of burned-out bulb. Merely pressing on the light lens disconnects bulb from its normal circuit and checks it on a test power supply. Resistor and transformer types available.



The most complete line of oil-tight selector switches on the market. Key or knob operated; two or three position. Positions may maintain contact or have spring return. Three standard contact blocks provide a wide range of circuit combinations with the use of just a single block. Unlimited circuitry by adding blocks.



Roto-Push . . . the one-button control station. One Roto-Push can provide all the control functions for which two or three separate pushbuttons would be used normally. Available in a wide range of selector and button operators. Roto-Push simplifies panel design and saves installation time to cut costs. Improves machine-operator efficiency.

between private life and office life.

American business is a moving business, and executives are subject to change of location at short notice. It often means pulling up roots, severing pleasant social connections, taking children out of school, selling one home and buying another. The shifting about is a painful procedure. Women are usually rooted deeper in community life than their husbands. When the decision to move is made, the wife needs self-discipline more than any other time. She measures all phases of family welfare against the demands of the company that employs her husband. When the pluses outweigh the minuses, she takes the lead in making the decision to move. She pulls up stakes without recrimination. She looks hopefully for the new home, and cultivates new neighbors without nostalgia for the old friends and acquaintances.

One of the vexing questions is as personal as it is emotional: "Why were you passed by on the promotion list? How come Jack got the branch management job when you were in line for it?" Other questions she doesn't ask may often be on the tip of her tongue: "Are you losing interest in your work? Are you developing bad working habits? Are you getting in an emotional rut?" Here is where nagging is sandpaper on the sensitive tissue of a disturbed mind. A little praise and comfort would serve better.

If some men get in a rut and need a gentle or even vigorous push from the distaff side, there is on the other side the hard-driving executive who is a tough taskmaster for everyone including himself. He expends his energies like a champing stallion un-

"I appreciate your honest criticism, Jenkins, and I'm sure your next employer will too."

Even their shepherd admits he can't figure out which is which. You'll be pleasantly surprised to find out that the *last* duplicated copy looks just like the first when you use *all-new* Colitho Direct Image Paper Plates and duplicating supplies.

The secret of this greater *uniformity* is that from plate to plate, box to box and shipment to shipment, Colitho Direct Image Paper Plates are *ph Control-coated to closer tolerances than ever before.* And Colitho Etch and Fountain Solution are specially formulated to bring out the exact same sparkling appearance from every plate.

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FINGER-TIP CONTROLS INCLUDING DYNAMIC BRAKE TO ELIMINATE "PLUGGING" THE MOTOR GOING DOWN RAMPS, AND "ARTICULATED" CONSTRUCTION ADJUSTS TO UNEVEN FLOORS - STEERS EASILY AND WORKS IN LESS SPACE BECAUSE OF THE DUAL WHEELS & DIFFERENTIAL DRIVE!
HOW ABOUT MAINTENANCE?
SNAP THE LATCH AND LIFT OFF THE COVERS - YOU DON'T EVEN TAKE THE MOTOR OUT TO GET AT THE BRUSHES, AND THE DISK BRAKE HAS A SIMPLE SCREW ADJUSTMENT
WRITE FOR OUR FREE TRUCK INDEX OF GO-GETTER ELECTRIC AND RED GIANT HAND LIFT TRUCKS
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Greater Miami manufacturers can **select** from dozens of well-qualified applicants for every position. There's a **hard dollar reason** for locating your plant here—selected, satisfied employees produce more efficiently and profitably.

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The Responsibilities of MRS. EXECUTIVE

How well does your wife measure up to this prescription for the ideal executive spouse? You may wish to show her this set of rules drawn by energetic young executives' wives at clinic session—but be prepared for the consequences if she does not take kindly to the role of paragon!

1. **Personal qualities.** The successful business wife is, first of all, a good wife and mother. She is affectionate, well-adjusted, adaptable, and possesses a sense of humor and a desire to grow and mature with her husband.

2. **Background.** Her background is similar to her husband's. Ideally, she is a college graduate and has had some business experience.

3. **Knowledge of her husband's business.** She has a knowledge of her husband's business, its products or services, its general organization, its key personnel, and the staff with whom he works.

4. **Her role in his work.** She is an intelligent listener and sounding board when her husband shares his business problems and experiences with her. When asked, she offers her counsel objectively.

5. **Attitude.** She encourages her husband in his work and understands its demands on his time and attention. She never nags or demands too much of him in his career.

6. **Confidences.** The successful business wife never commits the unpardonable sin of betraying a business confidence her husband has shared.

7. **The business wife and the office.** Except in emergency, her husband's office is a personal No-Man's Land for her problems or presence.

8. **Other women.** When her husband's position requires association or work with other women, the well-adjusted business wife is understanding and trusting. Her relationship with his secretary is cordial and one of mutual respect.

9. **Business and social life.** The successful business wife builds a happy social life for her family, but never permits it to influence business relationships or to interfere with her husband's business schedule. She maintains a joint business-social calendar with his secretary.

10. **Entertaining.** The best business wife is always a gracious, willing, and capable hostess to her husband's business guests—expected or unexpected!

11. **Community relationships.** Mrs. Good Business Wife is a good citizen too. She encourages her husband to take part in church and community activities and takes part herself.

12. **Her home: its appearance.** Mr. and Mrs. Businessman's home is attractive, neat, inviting, and reflects the pride, tastes, and needs of all the family.

13. **Her home: its atmosphere.** Her home is well-organized, relaxing, and as problem-free as possible.

14. **His health and relaxation.** She subtly cautions her husband when his pace is too rapid. She makes sure he finds time for the relaxation he enjoys and benefits from most.

15. **Joint projects.** The entire family spends some time each day or weekend working together on a home project or sharing recreation.

16. **In-laws.** The best business wife does her utmost, through personal contact and correspondence, to maintain a happy, understanding relationship for herself and her husband with his family.

17. **The budget.** Good business for the smart business wife is to see that the family lives within her husband's income.

18. **Moving.** When a transfer or job change is imminent, the successful business wife shares in the decision. She takes the lead in establishing her family in the new community and adjusts herself and the children to their new life as happily and as quickly as possible.

19. **Their children.** She provides ample opportunities for her husband and the children to share happy relationships and activities. She does not abdicate all responsibility for discipline to him.

20. **Man and wife.** Fundamentally, the most successful business wife appreciates and maintains a home and family in which her husband is permanent chairman of the board!

til he is slowed down by ulcers or a coronary. No woman is encouraged by the vision of widow's weeds, but how can she slow down her man before he cracks up?

Here again she must be the diplomat rather than the whining sad-sack. She learns how to divert his interests to more serene pastures. She finds that he resents having the obit column flaunted in his face, and is much more amenable to the page which describes the Caribbean cruise. Sometimes she is successful in teaching him how to play with his children, or even his grandchildren, for a man of 50 is often beginning the joys of second parenthood even if he is far from second childhood.

Who makes the home decisions? Occasionally there is a home where the wife is too efficient and takes too many of the responsibilities away from the husband. She begins to wear the pants at home, figuratively and factually, and something happens to the male ego. No decision at the office is so burdensome to an executive that he can't carry also the weight of a "yes" or "no" about church, school, movies, or automobiles. The women of the management clinic panel were unanimous in stating that the man must wear the pants, and be made to exercise his authority just to keep his mace from getting rusty or dusty.

The perfect wife of the business executive doesn't exist except as an ideal, and the description of this lady of all qualities might make her sound like a bit of a prig and a bore. A good personality seems to require more than the copybook virtues. A lively wit in repartee often strikes fire, and even the boss can stand a joke at his expense once in a while. But pity the poor Milquetoast who shivers in terror when the lady of his house pinks the official hide of the visiting V. P. There are wives with the impulse of shrew, jay, and shrike, who speak their mind with or without provocation, and word gets back to the boss, and the husband never knows why he got the Siberian assignment. One magpie with the drumming bill of a woodpecker hammered holes in the board of directors during a sponsored cruise, and hubby slid three rungs down the ladder in 30 days. But she seems to be the exception to a ragged rule of consistency.

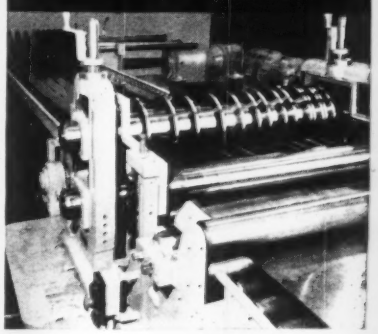
The commercially perfect wife of a business executive has minor imperfections, like the commercially perfect diamond that gets into the typical engagement ring. The bit of temper, petulance, evasiveness, and ambiguity are minor flaws that emphasize the humanity of the lady who really wants her man to get ahead, but doesn't want to be forgotten when the credits are shared.

One fact is obvious, to be sure. She can be a jewel of great treasure to her executive husband whether she is standing at his side or pushing from behind when his courage wanes. Yes, indeed, the executive wife is the hidden asset of many a well-managed enterprise.

—A. M. S.

Executives' wives write their own job descriptions. Important factor in the executive's selection and advancement these days is the woman he married—and these wives know it and want to do their part. At clinic under auspices of George Fry & Associates, they lay down rules for helping husbands forge ahead, including when to keep quiet, how to keep the coronaries away, and what to do when the boss comes to dinner. Total prescription is large order, but panel tackles the job enthusiastically. Taking part are (left to right): Mmes. Roy V. Shorey, Edwin D. Dodd, A. J. Stokely, Ross R. Millhiser, Otto V. Uhlir, and A. R. Cahill.

YODER SLITTING LINES



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In one plant, two Yoder tube mills and about 50 punch presses are being supplied with slit strands by one Yoder Slitting Line operated an average of only *seven hours per week*.

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These typical examples demonstrate, first, the big potential output of a relatively small, inexpensive Yoder standardized Slitting Line and, secondly, its big profitability. Assume production of only 35 tons of slit strands per 8 hour shift, one day per week, and the total per year would be 1750 tons. Estimating the saving in slitting cost at only one-half cent per lb., the total annual saving would be $17,500.00.

Besides the big convenience of doing your own slitting, such savings will often repay the investment in a few months.

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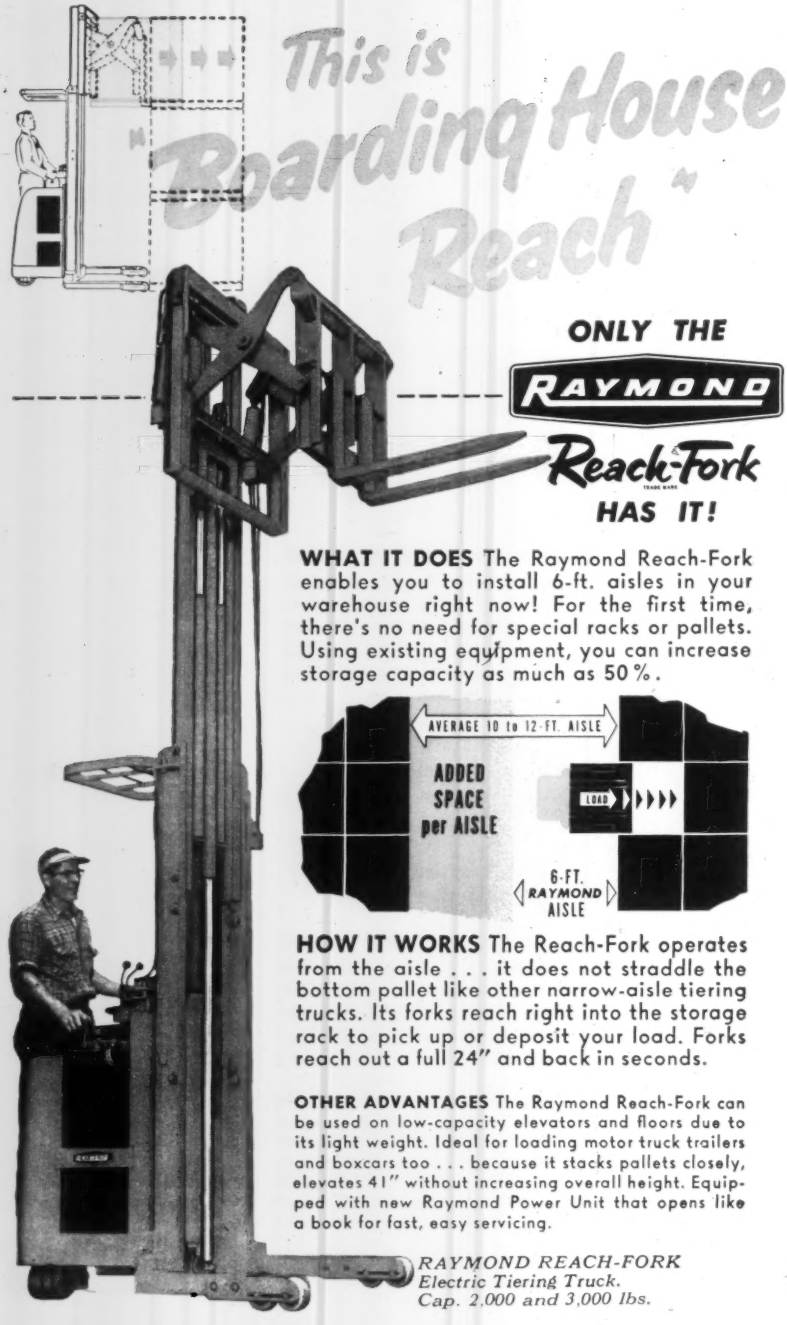
ENGINEERING YODER MANUFACTURING SLITTING LINES



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WHAT IT DOES The Raymond Reach-Fork enables you to install 6-ft. aisles in your warehouse right now! For the first time, there's no need for special racks or pallets. Using existing equipment, you can increase storage capacity as much as 50%.

HOW IT WORKS The Reach-Fork operates from the aisle . . . it does not straddle the bottom pallet like other narrow-aisle tiering trucks. Its forks reach right into the storage rack to pick up or deposit your load. Forks reach out a full 24" and back in seconds.

OTHER ADVANTAGES The Raymond Reach-Fork can be used on low-capacity elevators and floors due to its light weight. Ideal for loading motor truck trailers and boxcars too . . . because it stacks pallets closely, elevates 41" without increasing overall height. Equipped with new Raymond Power Unit that opens like a book for fast, easy servicing.

RAYMOND REACH-FORK
Electric Tiering Truck.
Cap. 2,000 and 3,000 lbs.

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STREET _____
CITY _____ STATE _____

GAW . . *continued*

goods producers must also reckon with "structural unemployment"—loss of jobs resulting from major technological changes.

Perhaps most importantly, hard goods companies may experience significant business cycles even when prosperity is general. Despite full, even over-full, employment during most of the postwar years, many of the durable goods industries have had cyclical ups and downs of their own. The same was true in the prosperous prewar period 1923-1929.

GAW might not induce much change if it stimulated the introduction of new products, but it would be unrealistic to expect this sort of reaction to predominate. The trend would be to increase output of items thought to be immune to industry ups and downs or capable of bucking general trends.

Effect on Market Structure

The auto industry will illustrate what might well prove to be a common reaction-pattern. Demand for auto parts is not only much more stable seasonally than that for cars but is probably less susceptible to business cycles because of the large direct replacement market. But assemblers are now in some degree suppliers of parts, and the share of the market held by outside companies will be obvious game if the UAW forces a full GAW on carmakers. The result would be not only less opportunity for newcomers, but reduction in the number of going concerns.

At the same time, adverse developments within the car-making field itself appear probable. If recession hit, major concerns would doubtless seek to limit further swings in their output by intensified sales effort and sharp price-cutting—perhaps after some interval of stock accumulation.

Both of these tactics might be approved by economists—particularly as one effect might be to temper inflation during booms. But since price does not seem to be the prime factor in determining the demand for cars, it is doubtful whether such measures would yield much of a permanent net addition to stabilization. During transitional stages, the pace-forcing concerns might make substantial progress by eliminating other assem-

Why you can profit from a new plant in Puerto Rico without paying any income tax

By TEODORO MOSCOSO

Administrator of Economic Development, Commonwealth of Puerto Rico

TEODORO MOSCOSO

YOU HAVE probably heard about Puerto Rico's current effort to raise its standard of living. We call it "Operation Bootstrap." But if you do not know the details, you should. For the Commonwealth Government is now offering U. S. manufacturers such extraordinary incentives that over 450 new factories have already been opened on this Caribbean island in the past five years.

However, before I reveal the details of our remarkable tax-free industrialization program, I do want to make two points of Commonwealth policy absolutely clear.

1. Puerto Rico has no intention of winning industries away from anywhere. Tax concessions are not granted to runaway plants.

2. We do not and never will hold out low wages as an attraction to business. Our Government's firm philosophy is that wages should rise, industry by industry, as profitability permits.

So much for our general aims and attitudes. Now for some details as they might affect you and your company.

100% tax freedom

Start a new plant in Puerto Rico and you are not only free from Federal income taxes (they don't apply)—you can be exempt from *local* taxes too.

Your freedom from Federal taxes is *not* a concession. It stems from that historic American principle—no taxation without representation. Puerto Rico has no vote in Congress, therefore no Federal income taxes—corporate or personal.

As for your exemption from Puerto Rican income tax, this is an *added* incentive offered by the Commonwealth Government to attract the new industry that Puerto Rico's economy needs so urgently.

Constitutional guarantees

And here is another important point. Your business is protected by the Commonwealth Constitution and Courts—as well as by the law and Constitution of the United States.

To see how local tax concessions and complete freedom from Federal taxes might affect your own balance sheet, I earnestly draw your attention to the tax exemption tables shown below. I think you will agree the figures are impressive.

How about labor?

Puerto Rico's labor force totals about 650,000 of which close to 100,000 are still unemployed.

However, the Commonwealth is now operating an effective vocational training program, which will even screen workers and teach them to operate your machines. The Puerto Rican worker's ability to learn new trades may be judged by some of the firms which have already started successful operations in Puerto Rico:

Union Carbide & Carbon, Remington Rand, St. Regis Paper, Beaunit Mills, International Latex, Carborundum Company, Shoe Corporation of America, United Drill and Tool, Sunbeam Electric, Univis Lens, Weston Electrical Instrument Company.

Remember, these companies and over four hundred more are now enjoying complete tax exemption in Puerto Rico. Surely, this is reason enough to investigate the whole project from *your* company's point of view.

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Mail me "Facts for the Manufacturer" with information about my industry.

Name _____

Title _____

Company _____

_____

Address _____

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Product _____

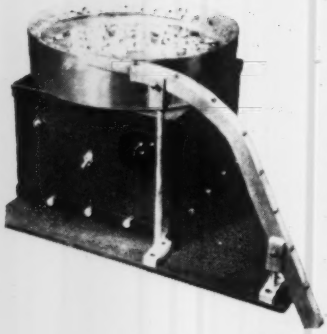
Corporate Tax Exemption

If your net profit after U. S. Corporate Income Tax is:	Your net profit in Puerto Rico would be:
$ 29,500	$ 50,000
53,500	100,000
245,500	500,000
485,500	1,000,000

Dividend Tax Exemption*

If your income after U. S. Individual Income Tax is:	Your net income in Puerto Rico would be:
$ 7,760	$ 10,000
15,850	25,000
25,180	50,000
51,180	200,000

*Dividends are tax-free only if paid to residents of Puerto Rico by a tax-exempt corporation. Examples are based on Federal rates (Jan. 1, 1956) for single persons.



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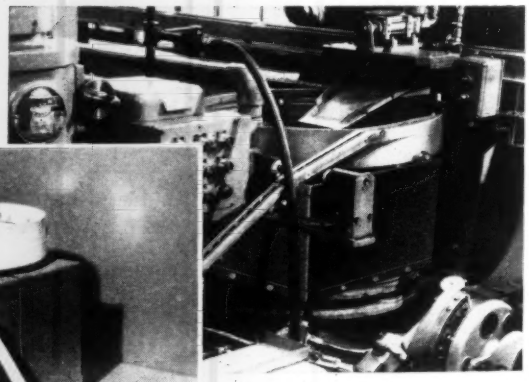

Successfully handling glass, plastics, ceramics, rubber, wood and metal parts.

SYNTRON "Vertical-Vibratory" Parts Feeders have broadened the once limited field of piece parts handling. Their unique, gentle vibrating action with controlled rate of parts flow permits the handling of very fragile parts such as thin walled glass bulbs, and easily chipped ceramic parts as well as metal, wood, rubber and plastic parts. All in oriented position, single file, one-at-a-time discharge.

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blers or cutting down their share of the market. This would not only heighten concentration, but swell frictional and structural unemployment further. Insofar as the victims were saddled with guarantees, the plight of supposedly protected workers would be worse than if there were no guarantees in the industry.

Kermit Eby, former CIO Director of Education and Research, set forth the possibilities here in rather blunt language in the July 1954 issue of *Current History:*

"I have doubts about the emphasis which the powerful industrial unions are putting on their annual wage drives. . . . I do not doubt that the UAW . . . are strong enough to win some form of guaranteed annual wage. . . . General Motors and Ford, perhaps even Chrysler, can make such guarantees. But what about Nash and Packard, Hudson and Willys? And if they are forced to try and fail, will not the competition which once marked the auto industry pass? And if the works fail, what becomes of the workers they once employed? . . . I think that if the guaranteed annual wage were successfully negotiated, it would contribute to the growth of monopoly by penalizing the weak; it might also contribute to job monopoly by jeopardizing those who were the recipients of special protection."

Broaden this statement to cover effects on independent auto-parts makers, add comparable possibilities in some of the other fields tagged for ordeal by guarantees, and one has a good statement of probable developments if a real GAW takes hold.

Where GAW companies do not have the natural-growth channels possessed by the auto industry, they would have to reach out into unrelated lines. Some of the effects would be the same, of course, but some would probably be worse

Before the process had gone far, the invaded areas might seek to check the forays through hostile legislation. Laws limiting company size or the range of products any one concern might handle are a possibility. This would mean, in effect, replacement of antitrust laws designed to encourage competition by laws aimed at discouraging it. Insofar as such tactics were successful, net stabilization would be nil, and the affected areas would be left with a clutter of impediments to efficient

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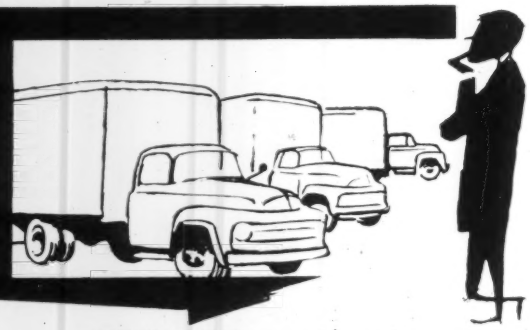

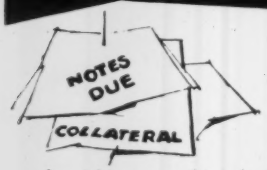

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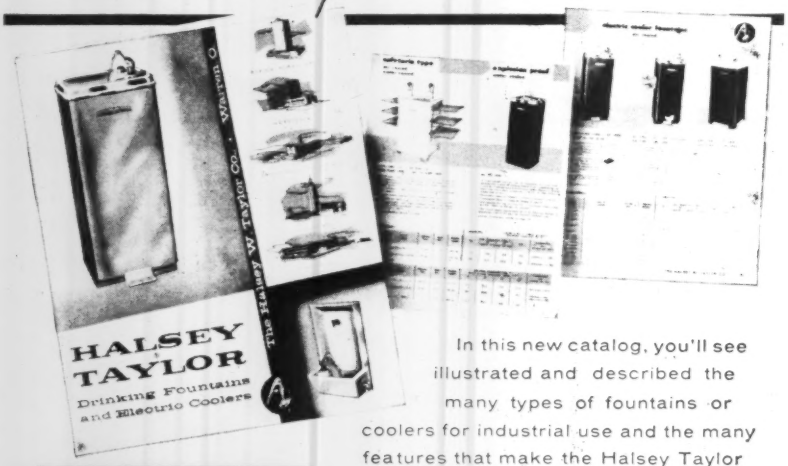

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performance. In his extensive study, *The Guaranteed Annual Wage*, published by the Brookings Institution in 1947, A. D. H. Kaplan regarded this kind of upshot as strongly possible. If the antitrust laws held firm in face of these maneuvers, the result might resemble that anticipated in the automobile case.

In short: From the viewpoint of its effect on new enterprise and maintenance of a healthy competitive product-market structure, widespread resort to GAW in durable goods industries hardly appears prudent.

Effect on Labor Mobility

It remains to assess the probable effect of full-scale guarantees on worker mobility under conditions of high-level demand. Here advocates and opponents of GAW see eye to eye on several points: They agree that in a world free of guarantees, a heavy movement of workers among firms and even industries may be expected. Both believe that GAW's will encourage some kinds of movement and discourage others; and that the *net* result is likely to be less mobility. The major point in dispute is whether, on balance, such a development would be good or bad.

GAW supporters regard a good outcome as certain. They contend that the net change will be:

1. *A rise in desirable movement.* Fewer people, they believe, would keep shifting between idle labor-pools and seasonal or casual work. Since there would be fewer seasonal jobs, there would be fewer opportunities for seasonal workers, and these would tend to seek permanent jobs.

2. *A larger drop in undesirable movement from one company to another.* Thus the Office of War Mobilization's *Renegotiation Report* to the President in 1947 stated, "The great bulk of labor mobility is unnecessary and excessive and reductions in mobility are to be looked upon as beneficial rather than otherwise." Opponents of guarantees, on the other hand, believe that the slowdown in total movement will be compounded of a *rise* in *undesirable movement* and a larger *drop* in *desirable movement*. Which set of expectations is more reasonable?

Evidently this will depend on the character of the shifts that take place during eras of prosperity when guarantees do not exist. If, in a GAW-free world, job separations

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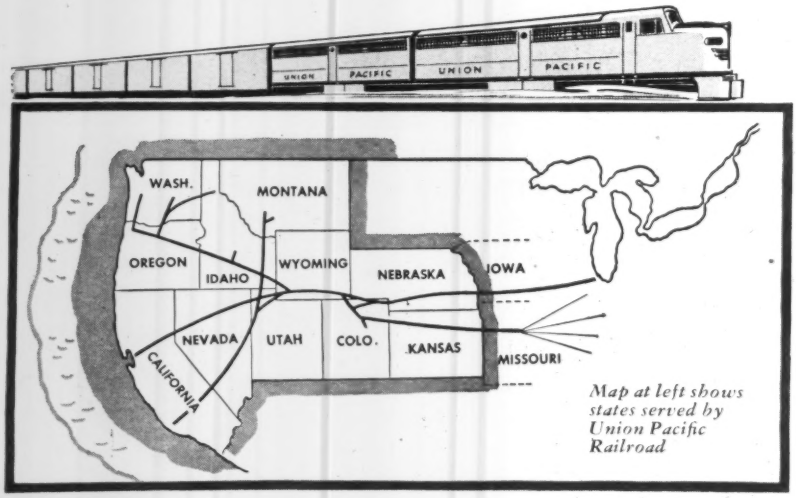

Map at left shows states served by Union Pacific Railroad

mainly took the form of layoffs—and those laid-off suffered spells of unemployment or had to take less desirable jobs—and if GAW cut down the layoffs, then GAW supporters would have made their case. There would still be pluses and minuses, but the reduction in layoffs and evaporation of idle-labor pools would well be worth the price of fewer desirable voluntary job changes. But consider another possible set of conditions: (1) Most of those separated leave of their own accord to take better jobs. (2) Most nonseasonal layoffs are largely desirable adjustments to dynamic change. (3) Guarantees do not promise much desirable reduction in layoffs—tending instead to freeze some in jobs less productive than they might otherwise get, and to freeze in idleness others who tend to move to productive employment under existing unemployment compensation rules. In that case, GAW's effects on mobility are not likely to arouse enthusiasm. Which is the more accurate picture?

We have already given reasons why guarantees are likely to make workers more hesitant to leave secure berths to start businesses of their own, and also less likely to take more productive employment with new firms. More importantly, GAW will reduce incentives to change jobs in any case. Workers protected by guarantees obviously will not want to move to established businesses in uncovered lines, or even to other businesses covered by GAW.

This effect would not be very

"If working makes him tired, why does he do it?"

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Ex-Cell-O Precision Cylinder Boring Machines shown below are finish-boring V-8 engine blocks. Like so many other high-production machines, these make generous use of hydraulics.

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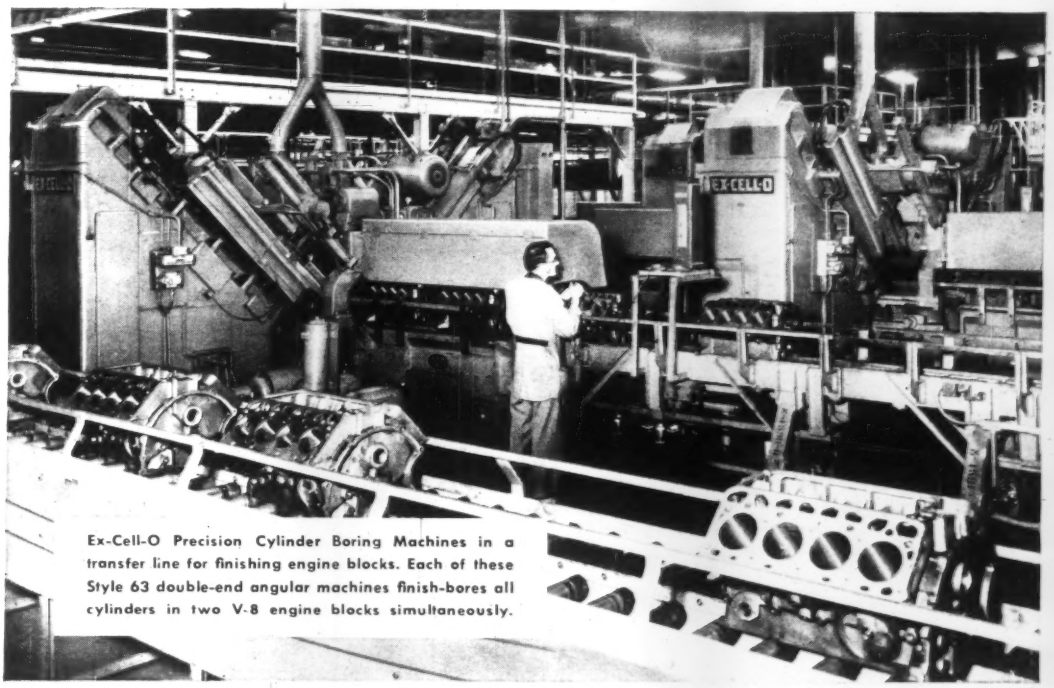

Ex-Cell-O Precision Cylinder Boring Machines in a transfer line for finishing engine blocks. Each of these Style 63 double-end angular machines finish-bores all cylinders in two V-8 engine blocks simultaneously.

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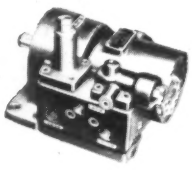

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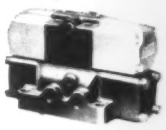
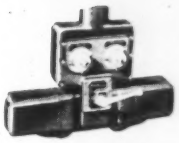
Insures lower maintenance cost and saves horsepower and heat in two-pressure hydraulic circuit. Automatically provides high volume at low pressure and low volume at high pressure.



Solenoid Controlled Pilot Operated 4-Way Valve

Compact and versatile "sandwich" construction. Gasket mounting simplifies installation and overhaul . . . also minimizes piping.



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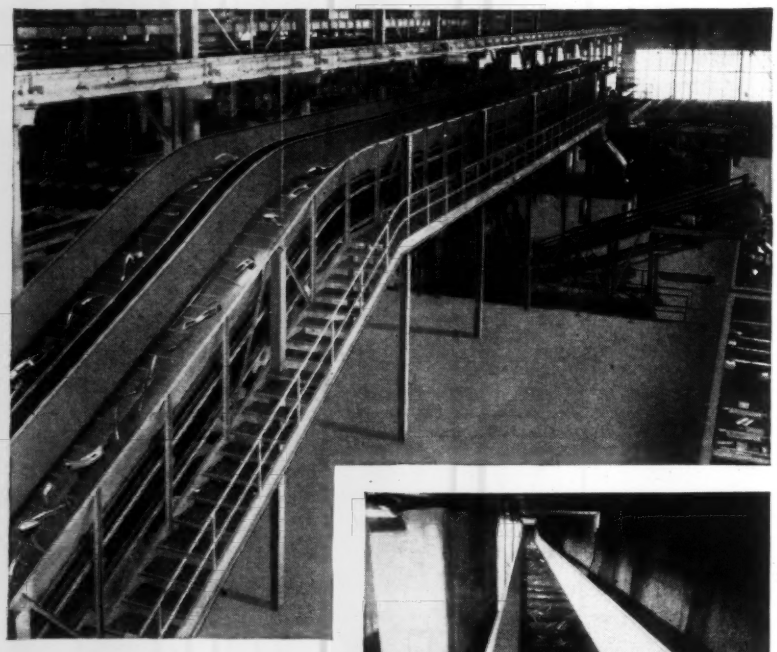
Maintains smooth and constant preset feed rate regardless of fluctuations in cutting tool resistance or hydraulic pressure.



Planet apron conveyor moving through tunnel beneath trim presses.

THIS 1200 FT. PLANET CONVEYOR moves 20 tons of scrap per hour!

At a leading automobile plant . . . this Planet conveyor automatically handles the loose scrap from trim presses with a combined capacity of over 4,000 **tons**

Over 20 **tons** of scrap per hour drop on a Planet hinged-pan apron conveyor as it moves through a tunnel under the presses. Moving to an automatic baler, the scrap is compressed into 2' cubes. Then the baled scrap moves on a Planet pusher bar conveyor direct to the waiting railroad cars. A simple clutch-operated auxiliary drive assures continuity of operation.

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Because the entire operation is automatic . . .
Because this scrap-handling system saves time and labor . .

• It PAID this manufacturer to "Plan with Planet." It will pay you too! Better write today!

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- STEEL FABRICATION

harmful if such shifts were not common now or if they served no valid social ends. But the record indicates that in prosperous times there is a good deal of voluntary job changing and most of it is beneficial. Several studies show this: W. A. Woytinsky's estimate for the 1920's, Bureau of Labor Statistics' data for the period 1947–1953, and Miss Gladys Palmer's study of the period 1940–1950 all show high ratios (65–75 per cent) of voluntary to total separation. Perhaps the most comprehensive is *Labor Mobility in Six Cities* by Miss Palmer, published by the Social Science Research Council in 1954. Miss Palmer writes: "When employment is at a high level, voluntary job changes tend to reflect an improvement in economic position and skill of workers." In the *Monthly Labor Review* of March 1955 Abraham Bluestone, in his article "Major Studies of Workers' Reasons for Job Choice," gives further evidence to the same general effect.

These findings must be emphasized because some less comprehensive studies suggest that movement is a haphazard business and that in most cases its consequences are socially questionable. This view may be based to some extent on findings during a severe recession or in the period 1945–1946, when many workers had to take lower-paying jobs after the drop in munitions output.

Net Results

Thus GAW's effects on voluntary job changing would be both significant and undesirable. To set against these adverse influences, there appears to be only one desirable kind of growth in "job security" of the type engendered by GAW—that which keeps busy people who would otherwise be laid off and obliged to move eventually to less productive work elsewhere. But the odds seem strong that this sort of thing would be of only minor importance.

For the reasons given here or in the December DR&MI article, there would be little reduction in the seasonal swings in employment or in those due to business cycles. And what stabilization there was would be inefficient since it would rely on make-work expedients. Also, successful efforts to stabilize jobs in one firm would destabilize them in others.

More obviously, there would be greater immobilization in idleness.

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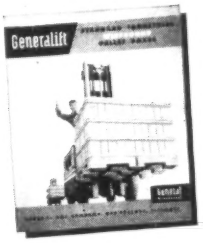

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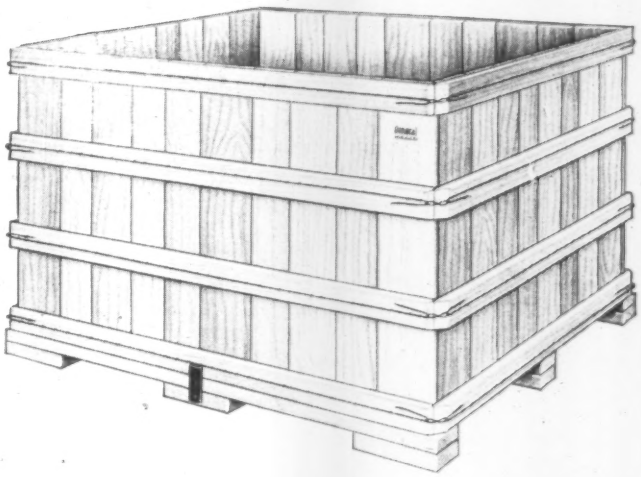

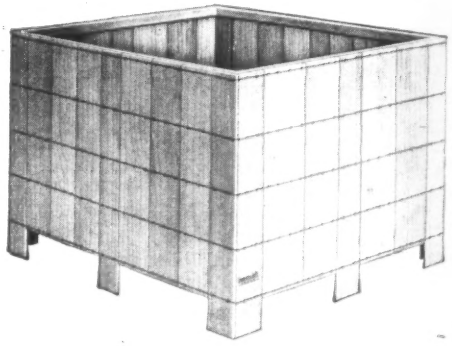

Catalog No.	Outside Dimensions	Inside Dimensions
IPB-EXP	41 x 35 x 29½	40 x 34 x 24

STANDARD INDUSTRIAL RE-USABLE PALLET BOXES			
Catalog No. Regular	Catalog No. Open-Front Bin Type*	Outside Dimensions	Inside Dimensions
IR-L-24	IB-L-24	48 x 40 x 29⅞	45½ x 37½ x 24
IR-L-30	IB-L-30	48 x 40 x 35⅞	45½ x 37½ x 30
IR-S-24	IB-S-24	41 x 35 x 29⅞	38½ x 32½ x 24
IR-S-30	IB-S-30	41 x 35 x 35⅞	38½ x 32½ x 30

Note: Nesting of stacked boxes reduces listed outside height by ⅞".
*Gates available on order.

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If in your operation you use salesmen, our city-county street maps might save your men considerable time. Test after test conclusively proves that this type personnel will make more calls more often if you make it convenient. Our city-county street maps locate instantly and mechanically for your salesmen, any street address in any American city. We will promptly mail one of your secretaries a brochure.

If the unions' goal is won, it will be easy to collect the GAW benefits and the payments themselves will be substantial. Thus those laid off will have less incentive to look for jobs elsewhere. Under present unemployment compensation rules, such movement has been rapid in periods of high activity.

Growth of immobilization in idleness promises to be substantial. To some extent, the freezing of covered workers in their jobs will mean less competition for jobs in other lines, but a significant jump in the number of those who remain idle for long periods seems likely. Since at least a substantial part of the movement of laid-off workers that takes place in good times appears to be beneficial, this prospect appears to be undesirable; so is the prospect of people being held in make-work projects when more productive jobs are available. The idea of sufficient worker mobility to keep employment and production generally high seems more appealing, even on welfare grounds, than the specter of a feudal attachment of each worker to a single company. Certainly it is more helpful to the public.

None of this is meant to deny that job transfers could often be made more smoothly and with better end-results than in the past. But as in the case of movements necessitated by seasonal swings (DR&MI, December), it seems more prudent to center efforts on improving the machinery for bringing jobs and job-seekers together.

Acceleration of Mobility

We have been discussing GAW's dampening effects on labor mobility. In some respects and circumstances it could stimulate job exchanges. The effect of greater stabilization in forcing permanent shifts of casual or seasonal workers to other fields has already been noted. But we have to learn or surmise whether the net result would be undesirable and, if so, whether any gain would be great enough to compensate for the drag on healthy job shifting.

Other things equal, any stimulus to movement that causes evaporation of idle-labor pools may be considered desirable. But GAW does not promise to contribute much there. Except for casual labor markets and infrequent cases of protracted structural unemployment, pools of idle

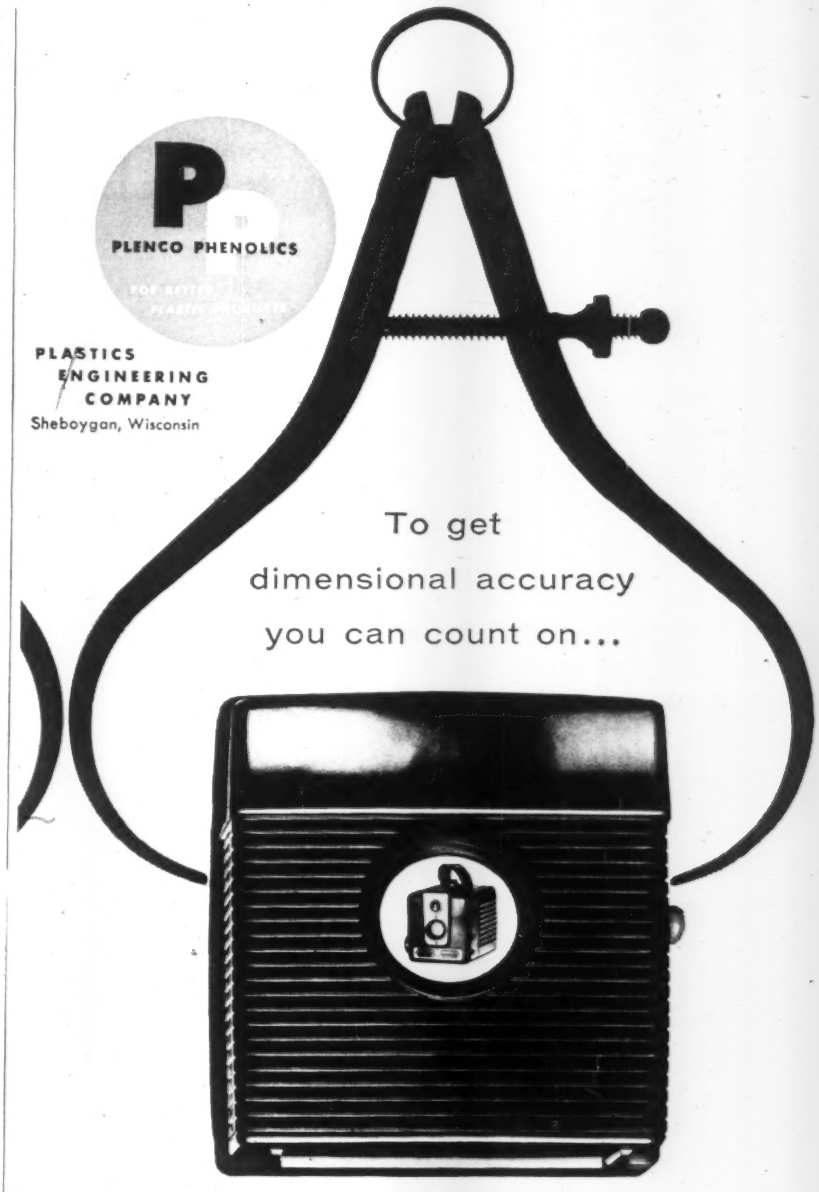
labor are now usually found to result from seasonal layoffs, plus sluggishness in movement to other fields during off-seasons. But seasonal unemployment is comparatively slight in GAW target lines, and normal processes of inter-job shifting quietly and effectively take care of most of it (DR&MI December). Obviously, all industries do not have the same seasonal patterns any more than they have the same business cycle patterns. "Help wanted" signs flash on in some industries while layoffs are occurring in others.

When one adds to this the probability that GAW would not lead to appreciable levelling of the seasonal swings (and thus to direct reduction in the flow of workers into idle-labor pools), it seems unrealistic to expect the *gross* improvement in this respect to be more than marginal. It would easily be overshadowed by GAW's tendency to freeze in idleness laid-off workers who under present conditions shift to other jobs.

Further Limitations

Moreover GAW would heighten barriers to entry into covered lines, thereby forcing some newcomers into the labor force or people displaced in various lines to move outside GAW-covered industries in search of jobs. In some degree, the movement of people in GAW industries to other areas and their replacement by newcomers would better serve the social interest, because of the distribution of native aptitude for various kinds of jobs among workers. Odds are that these effects would not be very significant in an absolute sense, but it is quite possible that they would outweigh any beneficial stimulus to movement.

Analysis fails to vindicate in full either of the two extreme positions set forth earlier. It seems equally clear that it lends much stronger support to the view held by those opposing guarantees than to that taken by GAW proponents. In the case of stimuli to movement, we have just seen, one cannot determine on general grounds on whose side the balance tilts. But whatever the net upshot here, GAW's tendency to retard movement appears certain to be not only much more significant but largely undesirable. With respect to their effects on mobility, too, full-scale guarantees appear to deserve low marks.



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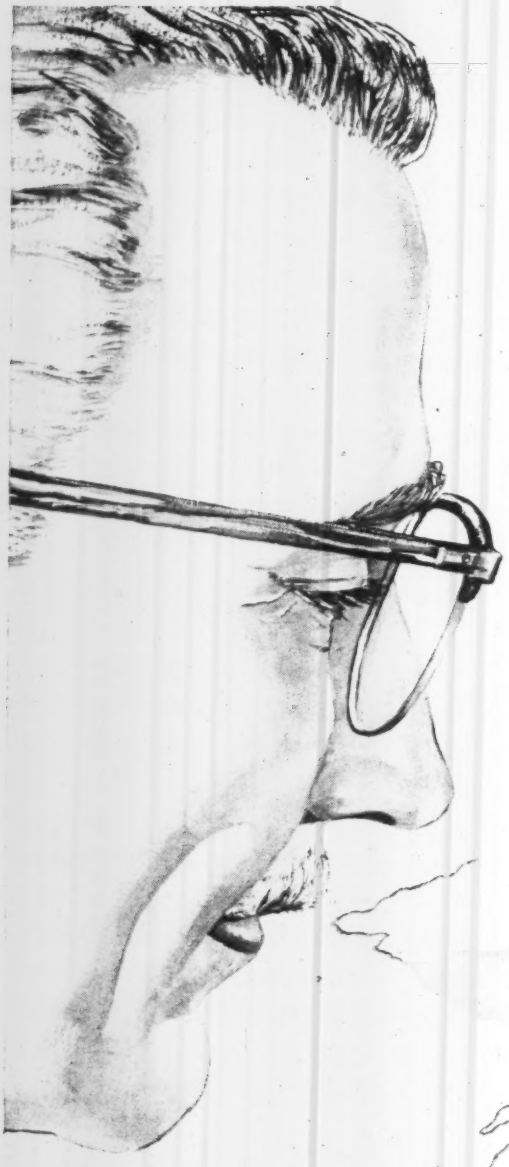

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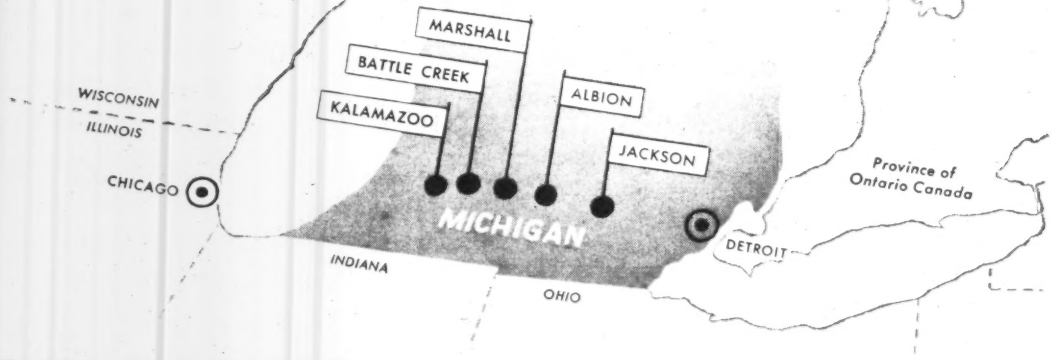

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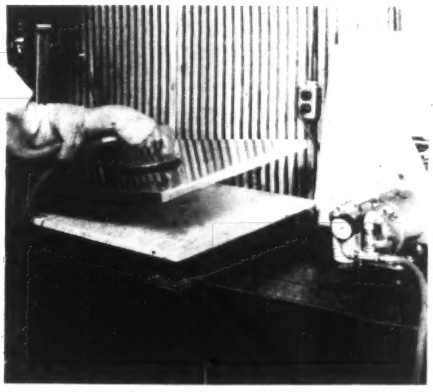


International Staple and Machine Company

Vacuum lifter holds as much as 200 pounds, yet is light in weight, easy to use.

Velocity Power Tool Company

Acetylene torch features fast-action, battery-powered ignition; automatic shut off.

More power for hand power

Manual lifting, cutting, drilling, and fastening are such common operations that they're often overlooked when new methods are under discussion and new equipment purchases are being planned. But, though common, they can be exceedingly costly. That's why it's important to take advantage of every new tool that can help to mechanize hand jobs, increase productivity, and reduce safety hazards.

A good many such tools are now available, and more are being introduced all the time.

The welding and soldering tools at the left have been made lighter in weight (to reduce operator fatigue), safer, and easier to use; and they're fitted to new production needs. The Vulcan soldering unit, for instance, is specifically recommended for assembly and repair work on printed circuits (see January, page 45).

The self-feeding *Scrumspak* screwdriver (photograph below, right) with its cockscomb cartridge can make fastening a high-speed, efficient operation. The cartridges, which hold 50 to 60 screws (depending on size), can be loaded automatically, and will accommodate practically any type of screw, 3/16 to 1½ inches long.

Other innovations include battery ignition for acetylene torches (left) and a variety of special tools for use with standard air-powered and electrical equipment. Each one can help to save the minutes that can add up to sizable dollar credits on the year-end balance sheet.

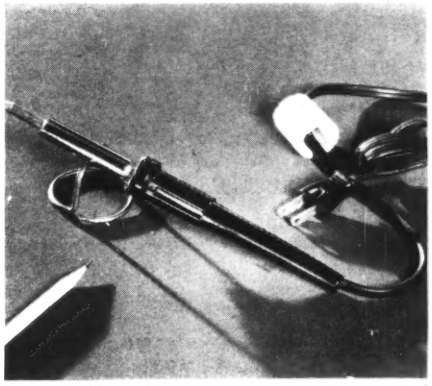
Materials in brief

Safer solvent: A material "almost identical to carbon tetrachloride in physical and cleaning properties . . . [yet] much less likely to injure the user" certainly rates close attention—and that's how the American Industrial Hygiene Association describes methyl chloroform.

This solvent, which has been commercially available for just a few years, is only now gaining recognition for its cleaning ability as well as its safety.

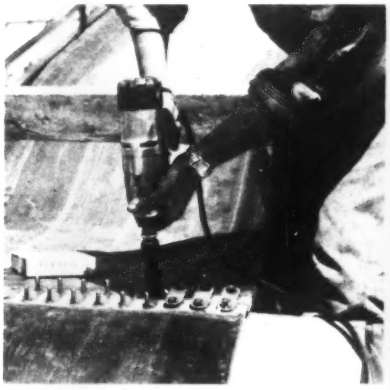
Process ventilation will still be required, the AIHA says, when methyl chloroform is used at elevated temperatures or for prolonged periods, but "general ventilation is considered sufficient for brief exposures."

Synthetic fiber felts: Mechanically interlocked synthetic fiber mats—Orlon, Nylon, Dynel, Dacron, Arnel, and Acrilan (see September 1956, page 87) are now available for use as bearing filters, wicking materials,



Vulcan Electric Company

Soldering tool, with Durez phenolic handle, is pencil-slim, and also light in weight.

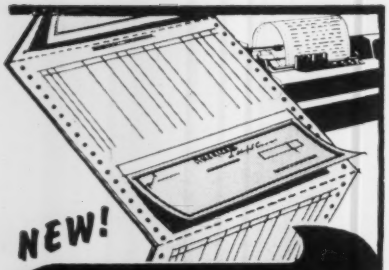


Flexible Steel Lacing Company

Power wrench, used with standard air impact tool, makes belt-splicing jobs a breeze.

Shakeproof Division, Illinois Tool Works

Self-feeding screwdriver, air-powered, drives screws fast as operator can pull trigger.



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reinforcing materials, and overlays for plastic laminates. American Felt Company, which makes these *Feutron* felts, says they drape well (an important characteristic in making laminates), and have excellent chemical, thermal, and electrical properties.

Low-temperature enamels: Porcelain frits that can be fired at temperatures well below those required for conventional enamels (1,000° F to 1,300° F as compared to 1,500° F or more) open exciting new possibilities in display, lighting, and architecture, the Porcelain Enamel Institute reports. Particularly interesting applications are enameled aluminum and enameled aluminized steel.

Applying enamel to these materials may seem like painting the lily, but there are many advantages to be gained.

Enameled aluminum combines lightness in weight with surface hardness, color, and durability.

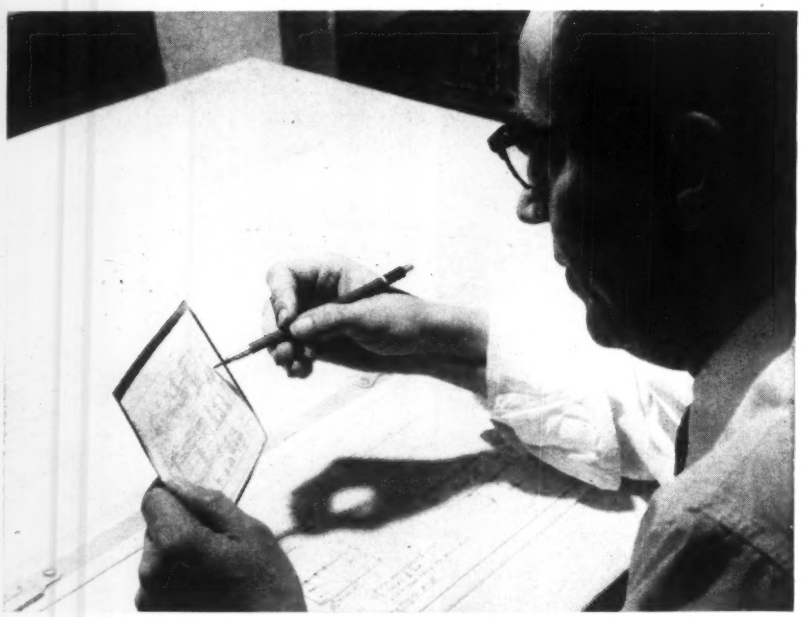
Enameled aluminized steel is said to be less expensive than most materials to which enamel coatings are now being applied. It can be used in thinner gages, and even one-coat, one-fire finishes have a high degree of resistance to chipping.

Protective coatings: Thirty-page manual, with color chips and color photographs, tells when, how, and why to use fish oil-based maintenance paints. Rust-Oleum Corp., 2799 Oakton Street, Evanston, Ill.

Coming event: New manual welding method, using continuously fed bare wire, is soon to be unveiled. Its developer says welds can be made "in all positions . . . without changing welding conditions or equipment . . . on all types of carbon steel." Look for details next month.

continued on page 92

Drawings sized to order



Huge engineering drawings are reduced to manageable size for storage and shipment, and then reproduced in any desired scale or dimensions. New process, jointly developed by Micro-Master, Inc. and Keuffel & Esser Company, uses special camera and 105mm (four by six inches) film instead of 35 or 70mm, is said to produce prints that are virtually distortion-free. Prints can be made on either regular or tracing paper, and the process is said to permit direct preparation of offset plates for quantity duplication.

The Micro-Master service is now available on a nation-wide basis, through most Keuffel & Esser offices and many of its distributors, so that it is possible to take a drawing, layout plan, or other material into a K&E office on one coast, obtain a negative, airmail it across country, and have the desired blow-up made at the other end of the trip in a minimum period of time and at surprisingly low cost (the savings on shipping alone may more than pay for the cost of the print).

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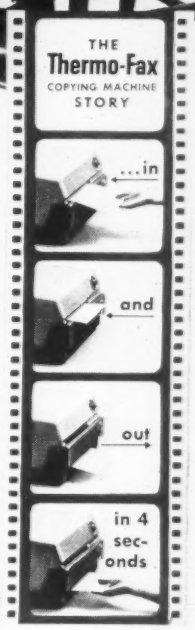

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Adhesion à la carte

Tapes that won't stick to themselves and papers that will are both finding new uses in packaging, premiums, and displays.

A new double-coated transparent tape made by Minnesota Mining and Manufacturing Company is said to have an adhesive that will hold securely to other materials, yet bonds so lightly to itself that it unwinds easily and smoothly.

Self-adhesive coated paper that sticks to itself, "but to nothing else," can be used for packaging a variety of products—medical and surgical supplies, hardware, and even ice cream. Kimberly-Clark's Technical Papers Division reports that cohesive coated papers are being used for the top enclosure of tube-type sherbet containers and for wrapping surgical blood lancets, which must be sterilized after packaging. Premium makers like the cohesive paper, too, K-C reports, because it eliminates the need for glue and permits higher running speeds. K-C makes both regular and glassine-based types.

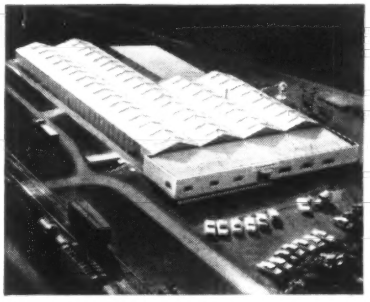
—A. R. G.

more news on page 94

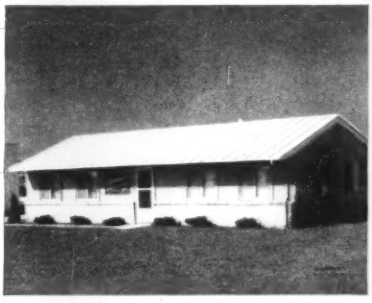
Concrete nibbler

Quiet as a mouse, at least in comparison with the jack hammers often used to bite through concrete, this new machine is powered by a General Electric Form G motor. GE says it will work almost anywhere, needs only a standard electrical outlet and a rubber hose attachment from a water tap. It can saw holes 1 to 6 inches in diameter at an average rate of 1 inch a minute, and will operate vertically or horizontally. Weight: 150 pounds. J. F. Hamlin Company of San Francisco makes it.

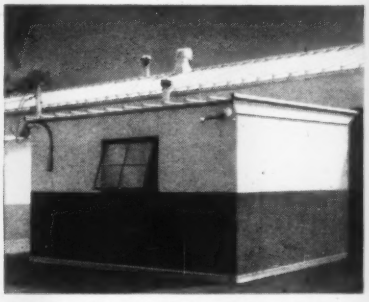
This big Armco Steel Building houses processing, manufacturing, assembling and shipping facilities.



Warehouse and office requirements are ideally met by this Armco Steel Building.



Exterior and interior treatment were easily handled in this Armco Steel office building.



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27 Styles and sizes to choose from—fully guaranteed. Write today.

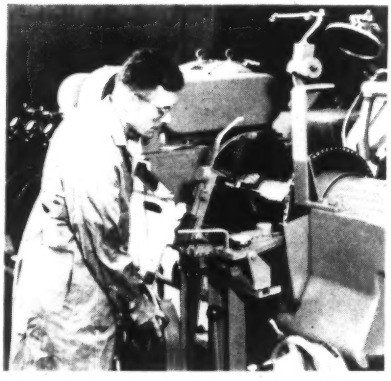
MILWAUKEE DUSTLESS BRUSH CO.

530 N. 22nd St., Milwaukee 3, Wis.

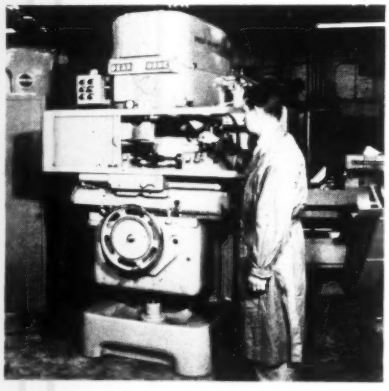
NEW METHODS

Machine tool

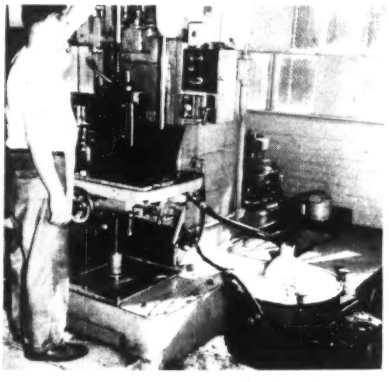
SAW-JOINTER COMBINATION is designed—and priced—for home as well as industrial use. It uses a ¾ HP motor, will take a full two-inch cut at a 45-degree tilt (depth of cut is 2¾ inches), has a guarded safety switch which can be locked, and a new arrangement for scales and controls. Made by Delta Power Tool Division, Rockwell Manufacturing Company, it's priced at $176.75, less motor.



CYLINDRICAL GRINDER for large, but relatively lightweight pieces, will handle work up to 30 inches in diameter. It features automatic cycling, presetting of truing and grinding speeds, and automatic coolant flow. Known as the Norton *Type LCTU* Semi-Automatic Cylindrical Grinder, it's made in several sizes, can be equipped with a number of accessories, including automatic wheel truing.



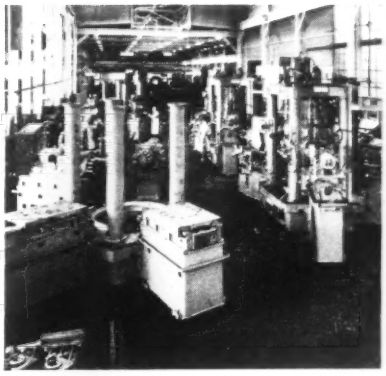
GEAR-FINISHING MACHINE, made by National Broach & Machine Company, "applies honing principles to the finishing of hardened gear teeth." Two models are offered: *Red Ring Model GHA* for relatively minor corrections in gear teeth; *Red Ring GHB* for more extensive machining. Both can be adapted for manual, semi-automatic, or automatic loading, and both use abrasive-impregnated cutting tools.

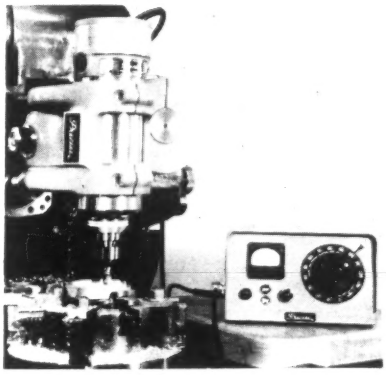


COOLANT CLARIFIER for grinding and honing machines is said by its manufacturer, De Laval Separator Company, to be unusually efficient and compact. It's a centrifugal unit that removes both abrasive grains and metal particles, has a dirt-holding capacity of more than three gallons, fits in six square feet of space. Price is $1,325, FOB Poughkeepsie, N. Y.

roundup

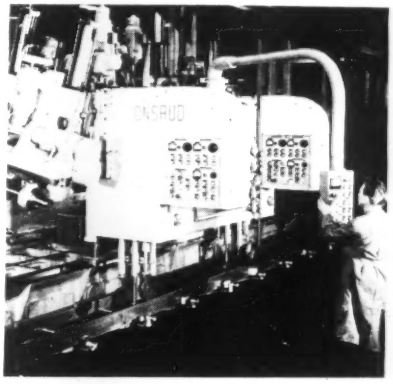
ASSEMBLY-LINE METHODS help machine tool builders keep costs down, output up. Here, Snyder Tool & Engineering Company, Detroit machine tool builder, shows its new set-up that makes it possible to assemble as many as ten big automated machines at a time, with a minimum of labor and handling. These are vertical trunnion-type tools for machining automotive axle housings.





NEW ACCESSORIES increase capacity and versatility. This heavy-duty power quill, made by Precise Products Corporation, is supplied with either universal or plane-type mounts, for attachment to the larger sizes of milling machines, lathes, grinders, and other standard tools. It operates on 115-volt current, provides a continuously variable speed range from 7,000 to 25,000 rpm, has electric speed control.

AUTOMATIC CONTROLS take over machine tool operation to accomplish jobs that are becoming too complex and exacting for human control. Here, twelve-unit General Electric electronic tracer control system is applied to Onsrud universal spar milling machine. Selsyn tracing heads can be seen following milling templets, mounted at base of machine, just above floor level.



BETTER COORDINATION of machine auxiliaries—loaders, unloaders, die lifters, safety mechanisms—is achieved through new devices like this rotary cam limit switch, designed for use on Clearing presses. Made in assemblies of four, nine, and eleven units, the *Automation Limit Switch* can be adjusted while the press is in operation, has sealed bearings, corrosion-resistant working parts.

BOOK YOUR SALESMEN FOR TOP-PROFIT TRAVEL

to give them

- **the jump on competition**
- **more calls on top prospects**
- **extra sales through extra selling time**

The vital sales information in Dun & Bradstreet State Sales Guides has helped thousands of good salesmen turn into star performers.

The Guides are lightweight, easy-to-carry volumes, which name merchandise-buying businesses in every city and town in a particular state, with ratings indicating capital strength and credit standing.

Each business is classified by line of business through a simple code number system, which makes it a cinch to go through the Sales Guides for prospects in any given line or lines.

Issued each January and July, the facts in State Sales Guides let your salesmen plan ahead to:

1 Overlook no worthwhile call. The Sales Guides cover all parts of a state, suburbs and outlying sections as well as central business districts.

2 Concentrate time on known purchasing power. Dun & Bradstreet information will enable men to pack in the most calls on best prospects.

3 Eliminate wasteful backtracking, aimless movements. A salesman will know where to go first, what to leave 'til later—and he can map out a top-profit route accordingly.

Don't face a competitive selling market without these fact-packed State Guides. Fill in the coupon and mail today.

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99 Church Street
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New York 8, New York

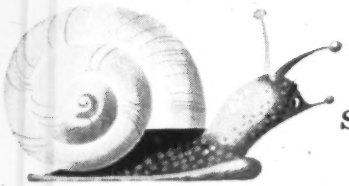
Please send me full details (including prices) about your pocket-sized State Sales Guides for road salesmen.

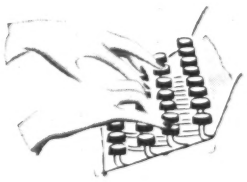
NAME _____

COMPANY _____

STREET & NO. _____

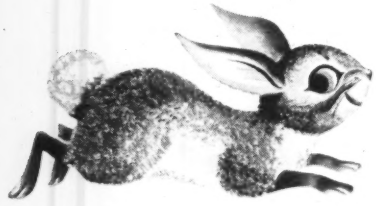
CITY _____ ZONE _____ STATE _____

Why fool with  slow-poke billing

when you can type... 

compute and check invoices...

all in one simple operation with the

world's fastest  billing machine...

So easy to operate. So accurate. And talk about *speed!* The Miracle Multiplier actually saves you two out of three billing steps!

- It computes and types a complete invoice in *one* easy operation.
- It computes by *direct* multiplication—much faster than by repeated addition.
- It prints quantity, unit price and total charge *simultaneously*—no need for checking machine entries and calculations.

But, you should see it yourself. Phone our nearby branch office. We'll take extra-special pride in putting *this* speed king through its paces for you. Burroughs Corporation, Detroit 32, Michigan.

Burroughs—Reg. TM.

Burroughs

BURROUGHS MIRACLE MULTIPLIER

typewriter-billing machine

THEY PICK THE POCKETS OF BUSINESS

Frauds against business are on the rise.

You may be a victim without knowing it.

THOMAS KENNY, *Marketing Editor*

THROUGH A COMBINATION of gullibility and carelessness, management is being cheated each year of hundreds of millions of dollars by frauds to which business men are particularly susceptible. Swindlers are finding easy pickings in these prosperous times among a group that prides itself on being practical-minded and hard-headed.

About two million arrests are made annually for such crimes as forgery, larceny, robbery, check-manipulations, and counterfeiting. About one-third are offenses against business, and small business in particular. Prosperity attracts the fast-money fellows as a picnic draws ants. With more money flowing through the economy, there are many more opportunities for some of it to catch on the sticky fingers of swindlers, defrauders, and others who prey on American business.

The total loss to business from all frauds—those committed by dishonest employees and outside sharpsters—has been estimated as about $1 billion a year. While it is true that the employee embezzlement produces a far larger "bezzle," the take of the outside swindlers is certainly not to be shrugged off.

Six schemes alone are now picking the pockets of business of at least $100 million. They are:

- The equipment repair racket
- The press photographer dodge
- Phony charity appeals
- Bogus bills for directory listings
- Misleading media
- Advanced fee deals

And these six—which the National Better Business Bureau lists as the most common at the present time—may actually be accounting for a much larger sum than the conservative NBBB estimate. For many companies may be victims without realizing it. Here's how the schemes work:

Calculating kidnappers: One of the most persistent and durable dodges is the phony office equipment racket. While the overwhelming majority of companies servicing office equipment are as honest as Abe Lincoln, there is unfortunately a fringe element, somewhat similar to the dishonest TV service repairmen. Better Business Bureaus have been receiving complaints from business men, particularly those in smaller companies, for many years about this dodge which takes an estimated $15 million a year from the pockets of business. To demonstrate how it works, here's an actual case:

About noon some months ago a "repairman" appeared in the office of a large consumer-products company in Manhattan. Presenting himself to an office clerk as a representative of one of the larger office equipment manufacturers, he inspected one of the office calculators, told the clerk it needed repairs, and took off with it like a dog with a bone. When the office manager returned from lunch, he discovered that the missing machine was already covered by a service contract with the manufacturer and certainly was not in need of repair, for it had been inspected only a few days earlier.

Beware of equipment "repairmen" who may hold your machines for ransom.

When the "press" photographer calls, look at the contract, not the birdie.

As is the usual practice in this sort of swindle, the company was told that before the machine could be returned a service charge of about $40 would have to be paid. Rather than giving in and paying the ransom, as most companies do, the office manager called the local Better Business Bureau, which advised him to send one of the company guards to the equipment repair office. Of course, the "repair service" gave up the kid-

napped calculator without a struggle as soon as the show of force was made.

To avoid annoying bills for fictitious repairs to office machines:

● Make sure that one person is responsible for the machines and let none be taken for repairs without his or her permission. Very frequently the "repairmen" show up during the lunch hour when few people are around.

"Charity" pitchmen and their wiles bilk business of millions of dollars every year.

● Insist on credentials from unfamiliar repair people.

The bogus press photographer. This is another dodge which mulcts management of millions each year. Here's how it works. A few months ago, several important executive changes – promotions, retirements, and so on—were announced by a large manufacturing company. As soon as the notice of the changes appeared in the daily papers, the executives received phone calls from a caller who said that he represented the news services and wanted to come to the office and take news photos of the executives involved in the shifts.

Of course, the answer was "yes," for companies today are as eager for publicity as a movie star. Before the cameras clicked, however, the executives were asked to sign "releases" for the photos—and this was explained as a mere matter of form to aid their distribution.

But in reality, as they later learned, the management men had signed up for a set of photos at a price considerably higher than the going commercial rate. For the shutter-snappers were, of course, not press representatives, but only shady operators outside the ranks of reputable photographers who would not stoop to using such misrepresentation to make a sale. The *caveats* in this case:

● Watch the small print before you watch the birdie.

● Demand press credentials.

● Ask them to put the phone offer into a letter. The penalties for using the mails to defraud scare off many swindlers and separate the bogus from the bonus.

Solicitations for dubious "charities" and "associations." The average small business man is badgered like a rich uncle by appeals for contributions. Without doubt most are for valid and worthy causes. But unfortunately there is an element of unsavory promoters who may latch onto a good cause and collect millions from business but pass on along only a very small share to the object of the charity. Or again, the supposed object of the charity may be non-existent.

The files of the BBB are crammed with many cases of such promotions. Last year there were about 138,000 complaints from business to the BBB about unworthy solicitations. The NBBB estimates conservatively that business loses at least $20 million each year to unworthy solicitations. Other estimates place the loss at about $50 million.

In order to avoid making a contribution to this loss, here's what you can do: Give freely to worthy charities, of course, but be wary of telephone solicitation for an unknown cause. Ask the caller to put the appeal into writing and mail it to you.

● Check with your local Chamber of Commerce or BBB about new appeals or those that arouse your suspicions.

● Channel all company contributions through one responsible person—so that a turndown by one department or executive won't bring an appeal to another.

● Ask for an audited financial statement. If promotional expenses run over 20 or 25 per cent, you should suspect professional "charity pitchmen."

Bogus billing. In companies across the nation, business men have been receiving in recent months bills for listings in business directories. The invoice is made up to resemble a bill sent for a small ad-listing in the classified phone directory. No one knows how many of these bogus bills have been merely glanced at and approved by management. But certainly the take for the defrauders has been enough to make it a flourishing practice in many cities.

Misleading media. A variation on the racket above is the actual cheap imitation of valid business directories. Certainly business directories provide a valuable service in guiding management through the maze of American business. But the field has attracted dishonest promoters who produce cheaply printed, pulp-paper directories that go only to those gulls who have been persuaded to pay for a listing.

Somewhat allied to this, according to the NBBB, are "puff sheets"—cheaply printed one-shot publications in which laudatory articles are printed about those executives willing to pay for large bulk orders. Of course, circulation is limited to the friends and business acquaintances of the purchaser.

Business men, of course, pride themselves on their friendly labor relations. And so it is understandable that they hesitate to turn down requests to take ad space in labor publications. Most of these requests come by long distance phone. However, the AFL-CIO emphasizes that none of its national publications is authorized to sell ad space. Nevertheless marginal publications manage to survive and pick up revenue simply by putting the word "labor" in the titles. Such spending by business pays off neither in labor good-will nor in advertising results.

Shoddy imitations of reputable business directories drain away many dollars.

Advance fee propositions. Numerous complaints from companies

continued on page 134

United Air Lines will pick up and deliver your shipment . . . hold space for it, too!

Want your shipment on a particular United Air Lines flight? Just say the words—"Reserved Air Freight." This guarantees the space you need on *any* flight you want. United will provide pickup and delivery service if you wish. For further assurance, United's system-wide Customer Service will monitor your shipment all the way to its destination.

There's assurance, too, in United's frequent, high-speed Air Freight schedules, including same-day DC-7 Mainliners and 30,000-lb.-capacity DC-6A Cargoliners coast to coast. All this is part of the new standard in Air Freight set by United. Specify UAL† on your next airbill, then notice the difference.

†UAL is a service mark used and owned by United Air Lines.

Examples of United's low Air Freight rates

	per 100 pounds*
CHICAGO to CLEVELAND	$4.78
NEW YORK to DETROIT	$5.90
DENVER to OMAHA	$6.42
SEATTLE to LOS ANGELES	$9.80
PHILADELPHIA to PORTLAND	$24.15
SAN FRANCISCO to BOSTON	$27.00

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.

Door-to-door service

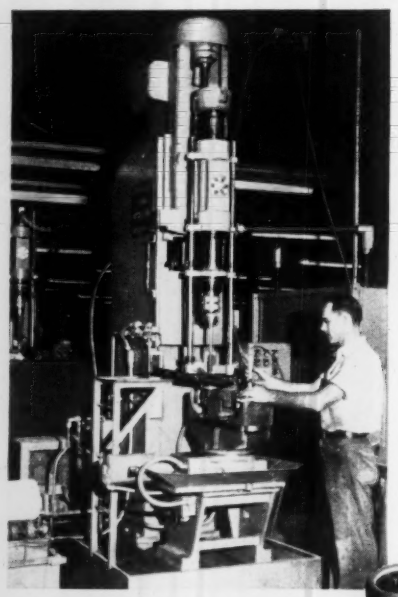
SHIP FAST . . . SHIP SURE . . . SHIP EASY

UNITED AIR LINES

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois.

WHY Emerson Electric MICROHONES Laminated Steel Rotors

The Emerson Electric Manufacturing Company is constantly searching for the best possible processing methods. Working with Micromatic engineers on problems encountered in processing shaft holes in their laminated steel rotors, Emerson Electric found that Microhoning would provide much higher production quality while lowering processing costs. The following Microhoning benefits are now obtained:



CUT REJECTS
With former processing method rejects ran too high. Microhoning controls size and assures a clean hole—rejects are substantially reduced.

ELIMINATED OPERATIONS
Old processing method required two operations. In one operation, Microhoning generates size and straightness within specified tolerances.

REDUCED BALANCING TIME 70%
To preclude vibration and poor operating characteristics, it is essential that shaft hole be concentric with O.D. of rotor. Microhoning reduced by 70% the amount of dynamic balancing correction required.

PROCESSING COSTS CUT 70%
Current figures show the cost of Microhoning shaft holes in rotors to be less than 30% of processing by old method.

Model 728 Hydrohoner with automatic Microsize, Microdial and two station rotary indexing fixture. Hole Tolerances: Diameter .0002 inch, straightness and roundness .0001 inch.

Rotors (from 2¼ to 4 inches long) are all Microhoned on the same machine by changing adaptor in fixture and resetting stroke length.

Learn why Microhoning will give you efficient stock removal, closer tolerances, accurate alignment and functional surfaces.

☐ Please have a Micromatic Field Engineer call.
☐ Please send Micromatic literature and case histories.

NAME_____

TITLE_____

COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____ D

MICROMATIC HONE CORP.
8100 SCHOOLCRAFT AVENUE • DETROIT 38, MICHIGAN

SALESMAN . . . *continued*

machines were dispensers of either dry or liquid concentrates, with hot water lines and separate dials for sugar and powdered cream. Currently, several manufacturers are producing machines that brew coffee from fresh coffee grounds. The result compares favorably with a good cup of restaurant coffee.

Until now, automatic merchandising has been limited primarily to impulse items for on-the-premises consumption. But, with the cost of sales labor at an all-time high, and with automation in distribution failing to keep pace with automation in production, vending experts are beginning to think in terms of planned purchasing through machines.

Milk is a striking example of the high cost of distribution. The quart of milk delivered to the doorstep may cost 26 cents. Eight cents, or nearly one-third of this cost, is eaten up by the driver's salary and the cost of maintaining his vehicle.

Milk vending machines are currently being placed in apartment houses and at filling stations. Cost of delivering a quart of milk to a vending machine that holds up to 200 quarts is about 2 cents, or 6 cents less than the cost of delivering it to the doorstep. Currently, there are not more than a couple of thousand quart milk machines in the country. Industry experts feel that figure will rise to tens of thousands in the next three years.

The reduced cost of distribution is not the major factor making for the expected increase in the number of mechanical milkmen. A substantial surplus has long plagued the milk industry, and automatic vending offers a method to reduce that surplus. According to Ezra Taft Benson, Secretary of Agriculture, lack of availability, not lack of desire, is the prime cause of the milk surplus.

When the average family runs out of milk in the evening or on a holiday or Sunday, it will often wait until the morning to make the purchase. Each month, millions of quarts of milk are unsold merely because they were not available.

As most machines are serviced at least once a week, few products remain in automatic merchandisers longer than fourteen days. With modern refrigeration, perishables will keep in vending machines as

long as they will keep in retail stores. Average time a product will remain in the machine varies from 24 hours in the case of milk to as long as several months in the case of such non-perishables as combs and handkerchiefs. Average turnover, though, is about seven days.

Automatic Supermarkets

Supermarkets are eying the development of milk vending and are mapping plans to dispense grocery staples automatically. Most stores are open nine hours a day, six days a week. This means that in a 168-hour week they are capable of producing revenue 54 hours but cannot bring in one cent for 114 hours. Late shopping nights are only a partial answer, because of the high cost of labor. Vending machines could make the 114 hours productive, with a minimum increase in labor costs.

The automatic supermarket became a reality in October 1956, when Grand Union, a leading East Coast chain, installed a battery of eight vending machines in the wall of its East Paterson, N. J. flagship store. These refrigerated machines now vend such grocery staples as bread, butter, milk, packaged meats, cheeses, canned goods, and eggs.

At least two other major grocery chains have indicated that they will begin experiments in automatic merchandising early in 1957. Growth in this field, however, will probably be limited during the year because of the unavailability of suitable vending equipment.

Meanwhile, vending machine manufacturers have on their drawing boards plans to produce dispensers of breakfast foods, meats, dairy products, and desserts. Production is

THE AUTHOR • Aaron Sternfield has been covering the automatic merchandising industry for *Vend* magazine and its sister publication, *The Billboard*, for five years. Prior to joining the staff of *Vend* Mr. Sternfield was editor and publisher of the *Brookline* (Mass.) *Chronicle*. A graduate of the University of North Dakota, he broke into the newspaper field as a general assignment reporter, and later sports editor, for the *Bismarck* (N. D.) *Tribune*. Following a brief stint on the copy desk of the *Atlantic City* (N. J.) *Daily World*, Mr. Sternfield joined the staff of *Hunting and Fishing* magazine as a feature writer. He later was news editor and then editor.

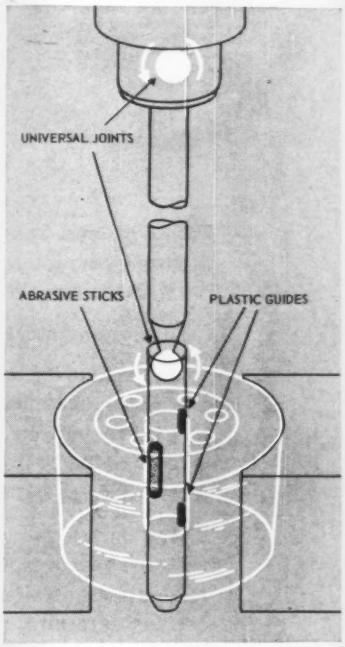
HOW MICROHONING Laminated Rotors Cuts Processing Costs

Emerson Electric squirrel-cage rotors are made of special "electrical grade" steel laminations and each lamination is coated with oxide insulation. In processing the rotor, the O.D. is turned concentric with the shaft hole. Then, in one operation, Microhoning accurately generates finished size and straightness of shaft hole without any change in hole location.

The Micromold tool has two universal joints in the drive shaft which allow the tool body to align itself with the shaft hole. Microhoning of holes is along same axis from which O.D. was turned.

For electrical and mechanical efficiency, assembled motors must have a uniform air-gap between rotor and stator of .006 inch to .011 inch. Because laminated surface is rough and close tolerances must be held, special guided Micromold tools are used. Plastic guides above and below abrasive sticks, control dressing of abrasive and assure generation of round, straight shaft holes.

Before installing Microhoning equipment, two operations were required to finish shaft hole—rejects ran high. Microhoning greatly reduced the amount of dynamic balancing correction required.



The principles and applications of Microhoning are explained in a 30-minute, 16 mm, sound movie, "Progress in Precision" . . . available at your request.

☐ Please send me "Progress in Precision" in time for showing on _____ (date).
☐ Please have a Micromatic Field Engineer call.
☐ Please send Microhoning literature and case histories.

NAME _____
TITLE _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____ D

MICROMATIC HONE CORP.
8100 SCHOOLCRAFT AVENUE • DETROIT 38, MICHIGAN

NO REASON WHY YOU CAN'T DO IT, TOO!

Typical of the Mueller Climatrol line is this summer air conditioner and gas-fired winter air conditioner, now uniformly painted electrostatically with RANSBURG NO. 2 PROCESS

MUELLER CLIMATROL,

Milwaukee, increases paint mileage 40% with

RANSBURG NO. 2 PROCESS

And, 10 men averaging 40 hours a week now do the work formerly handled by 24 men averaging 50 hours!

Painting used to be a bottleneck in the manufacture of heating and air conditioning equipment at Mueller Climatrol.

But not any more!

When Mueller modernized its finishing department—replacing hand spray with Ransburg No. 2 Process Electro-Spray—daily production was increased . . . finishing costs were cut . . . and quality of the work was improved.

Annually, Mueller coats over 10 million square feet of sheet metal, so a 40% increase in paint mileage—translated into paint dollars saved—is a sizeable figure. Pointing up other savings, a typical run of 400 furnace casings used to take 200 man hours to clean and hand spray. Mueller does it now in 60 hours!

NO REASON WHY YOU CAN'T DO IT, TOO!

Whatever your product, if your production justifies conveyorized painting, chances are one of the Ransburg Electro-Coating Processes can do it better, for less, with improved uniformity and quality of the work. Write for our new brochure which includes numerous examples of both large and small manufacturers of a variety of products who are enjoying the many advantages of *Ransburg Electrostatic Spray Painting.*

Ransburg ELECTRO-COATING CORP.
Indianapolis 7, Indiana

RANSBURG

expected to get underway by the end of 1957.

In many respects Europe, particularly the Scandanavian countries and Germany, are ahead of the United States in automatic merchandising.

For example, store front vending, as an adjunct to the retail operation, has been prevalent in northern Europe for two decades. Such items as roll film, corsages, candy bars and cigarettes have been dispensed from store windows. In many cases, the store owner will wheel out a portable vending battery after store closing.

Big Operators Emerging

According to *Vend* magazine, trade paper of the industry, vending machine operators are primarily small business men. Of the 5,500 operating firms in the nation, 34 per cent are one-man companies, and 42 per cent have from one to three employees. Only 5 per cent employ four to six persons, and 7 per cent employ eleven or more persons.

With the growth of in-plant feeding and the organization of automatic retail store chains, the days of the small vending firm appear numbered. On the operating level, Automatic Canteen Company of America (listed on the New York Stock Exchange) has annual sales in excess of $90 million a year. Continental Industries (listed on the American Stock Exchange) will gross about $20 million this year, mostly in operations. The ABC Vending Corporation, which has a substantial portion of its holdings in vending machines, grossed more than $50 million last year. ABC is listed on the New York Stock Exchange.

It is doubtful whether the vending operator will fit into the retail store picture. Historically, the function of the operator has been to deliver the goods to the machine and keep the machine in operating condition. With automatic merchandisers placed in or near the retail outlets, the vending operator will be bypassed and the stores will operate their own automatic venders.

What Limitations?

Not even the most ardent supporters of automatic merchandising claim that this method of distribution will replace the salesman. The vending machine hasn't been built that will convince a recalcitrant customer to

buy. All a vending machine can do is to make available a product which the customer wants to buy. Consumer surveys have shown that the popularity of various brands of cigarettes, candy, and soft drinks in vending machines runs in pretty close ratio to their popularity over the counter. Vending machines reflect consumer preferences—they do not create them.

Most of the factors that will limit the growth of vending are not physical. It is possible to build machines to vend neckties, shirts, and trousers. But it is doubtful that these machines will ever be built. The consumer wants to feel, try on, or perhaps return these items. He wants a sales clerk, not a machine.

When the vending field was limited to on-the-premises consumption products, machines were designed to accommodate products no larger than a bar of candy or a package of cigarettes. With the development of in-plant feeding, and vending as an adjunct to retailing, these limitations are vanishing.

For example, the European or Automat type automatic merchandiser can dispense products in adjustable trays—the larger the product vended, the lesser the machine capacity.

Let Robot Sell It

Automatic vending had its start about 2200 years ago when the inventor Hero put together a machine for selling holy water in Greek temples. In recent years such profane products as ice-cubes, charcoal, umbrellas, shaves, and even hangover remedies (in the form of a whiff of pure oxygen) have been made available at the touch of a lever and the drop of a coin.

Items as large as loaves of bread or half gallons of milk are currently vended with no mechanical difficulties. The limitations are not technical—vending machines can be designed to vend, with special packaging, nearly any food, drug, or clothing article. The real limitation is the volume potential. Unless the item vended is capable of mass sales, the tooling and production expense to make the vending machine is wasted effort.

At least 80 per cent of products currently vended sell for less than

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Direct telephone push-button systems—custom-tailored loudspeaking intercommunication systems—for all applications.

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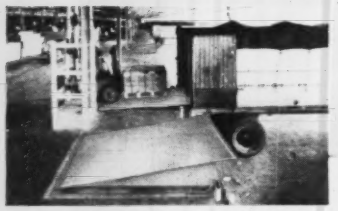
MODERN PLANTS NEED MODERN DOCKS



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Instal-Velope — the budget payment combined coupon and envelope — adds *extra* convenience to budget payments . . . extra convenience that means *extra* profits to you. Users offer proof positive that complete account information on each coupon speeds customer payments — shrinks bookkeeping and overhead costs. *A different advertising message on each coupon sells, and keeps selling,* your products all year long. Instal-Velope Coupon Books are conveniently packed in units of 9 - 12 - 18 - 24. Try them. You'll collect faster, sell more — at one and the same time!

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30 cents. However, nationally advertised products which sell for $1 or more are being vended, and consumer acceptance of these higher-priced products is growing. As the vending field lends itself to high-turnover items, the growth is likely to be confined largely to products vending for less than $1. The yardstick is this: A product that requires thought before purchasing is a poor bet for vending. As most impulse items sell for less than $1, the potential would seem to lie in that price field.

Within these limitations, though, the automatic merchandising industry has a potential of at least $10 billion annually—a potential it can reach in the next decade. The first supermarkets discovered that when goods were placed in the open, the consumer would buy on impulse. The automatic merchandising machine makes it possible for the consumer to satisfy that impulse 24 hours a day.

Some items require personal selling and others do not. The presence of the automatic merchandiser makes it possible for the clerk to concentrate on those goods which must be sold.

Larceny-Proof

Modern coin mechanisms are virtually slug-proof. In the early days of the coin machine industry, vandalism was somewhat of a problem, as the coin boxes were fairly easily accessible and offered a challenge to some crowbar experts. Getting into most modern vending machines requires the skill of a safecracker. On public locations, vandalism is virtually nonexistent, as few thieves like to work before an audience. The New York subway system is a minor exception. Vandalism in factory locations is more common, but it still is a negligible factor.

Many shoppers can make their purchases only on weekends and in the evening; automatic vending makes it possible for them to shop when it is convenient, with the savings in distribution costs passed on to them in the form of lower prices.

The vending machine is distribution's answer to automation—a salesman who works 24 hours a day, seven days a week; a salesman who doesn't require Social Security, fringe benefits, or paid vacations—a salesman who never sleeps.

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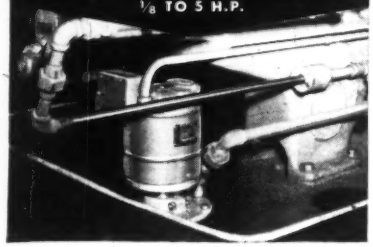

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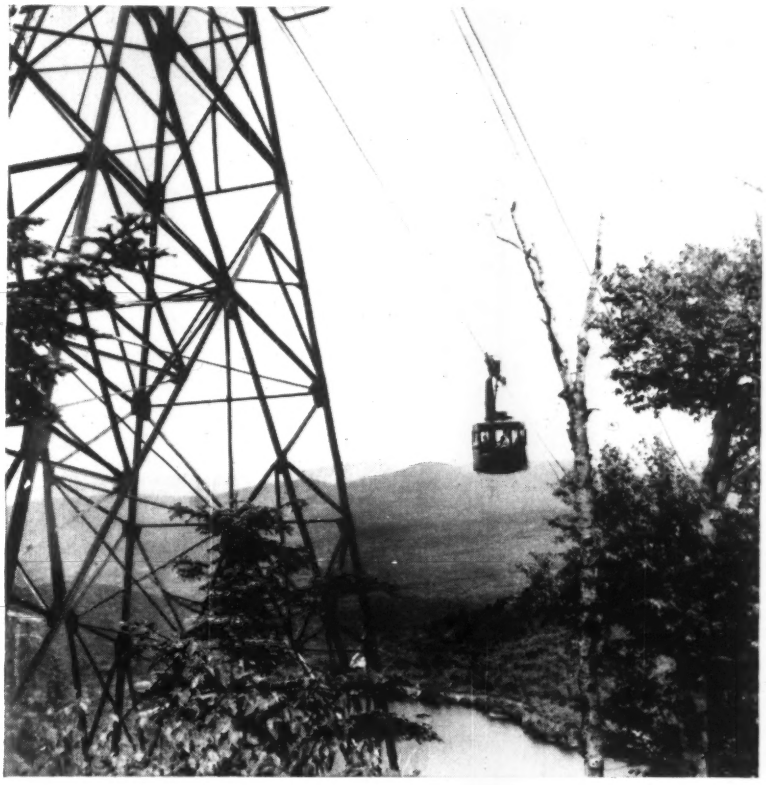

You'll Float Through The Air—For A Mile. This is a cable tramway for tourists that goes up Cannon Mountain at Franconia Notch in New Hampshire. The heavy wire ropes are well over a mile long, 1⅞ inch in diameter and they weigh 28 tons apiece. The cable was made and installed by American Steel & Wire Division of United States Steel.

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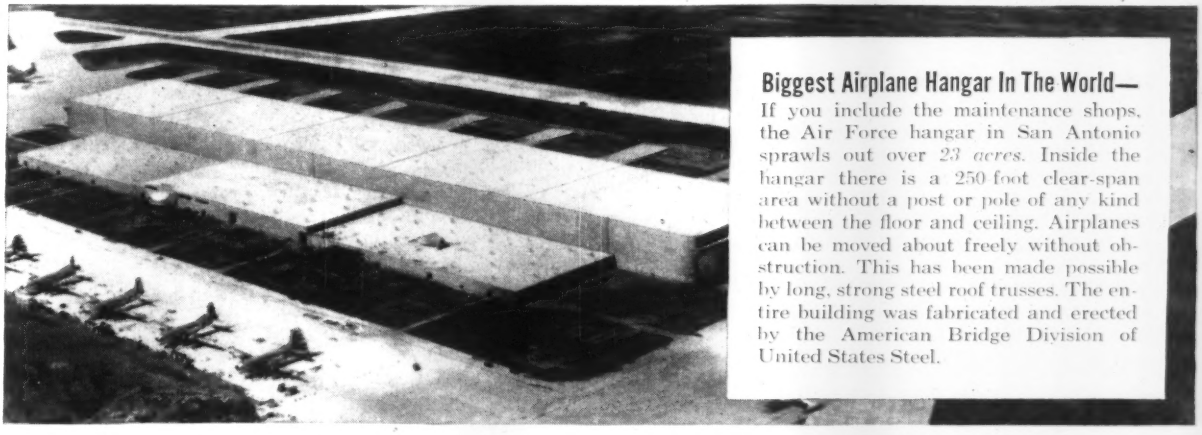

Biggest Airplane Hangar In The World— If you include the maintenance shops, the Air Force hangar in San Antonio sprawls out over *23 acres*. Inside the hangar there is a 250 foot clear-span area without a post or pole of any kind between the floor and ceiling. Airplanes can be moved about freely without obstruction. This has been made possible by long, strong steel roof trusses. The entire building was fabricated and erected by the American Bridge Division of United States Steel.

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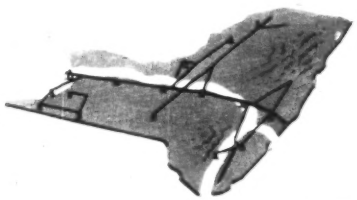

At left, is an artist's concept of Olean, N. Y. and one of the widest business streets in the world. Map shows the New York State Thruway flowing through the heart of the Niagara Mohawk System.

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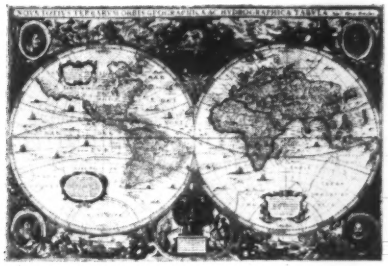

ALEXANDER O. STANLEY, *Editor*

MARION L. WEAVER, *Staff Assistant*

INTERNATIONAL LICENSE AGREEMENTS

CAN MAKE OR BREAK YOU

JOSEPH S. CARDINALE AND ALEXANDER O. STANLEY

The international license agreement is, of necessity, a complex instrument. In this study, the legal terminology has been reduced to essentials and translated into business text. The 33 check points, while not intended to be all-inclusive, emphasize the thinking necessary to create a sound contract. The casual contract will lead only to casualties sooner or later. The final and legal drafting of the agreement must, of course, be left to experienced counsel. But, to the extent that management understands the basic problems and possible solutions, it can supply the necessary ingredients of common sense and clear judgment at the conference table.

IN THE MORES of international trade, the practice of releasing manufacturing and marketing rights to foreign companies has much precedent, is fast attaining popularity as a means of mass exporting "know-how." At dead center between the extreme choices of exporting plants or exporting products, the licensing agreement appears to offer an ideal compromise, promises the flexibility needed in the constantly shifting pattern of world trade.

Your machinery, methods, men can be speedily transported to an already established plant, controlled by an experienced management, and serviced by an existing staff of technical and clerical help. At first glance, you don't have to worry about sites, seeking men, or measuring markets, for this has already been done by your prospective licensee. You don't have to buck import barriers, wonder whether tariffs will hobble you competitively, go through the complicated motions of multiple export shipments, keep score on individual debtors. And you don't have to debate whether, in the foreign consumer's mind, your trademark is there to stay or will be blanked out by competing products enjoying home industry protection. Best of all, you bring your products closer to the market, without the hazard of heavy capital investments, sometimes irretrievable, occasionally profitless. You can spend time and money piecemeal, expand or contract your investment at will, test the market. At the worst, you can change your licensee if he doesn't perform.

Here, then, is the modern remedy for modern problems. But there may be some unpleasant side-effects if you don't watch out. A license agreement can hope to define responsibility, provide measures of performance, protect you and your product from future trouble *only to the extent that problems can be foreseen and remedies provided in the contract.* It simply prepares the groundwork for a short-term partnership, whatever the long-term aspirations. It is this concept that should influence the clauses. And flexibility, not rigidity, will help to preserve continuity.

Overshadowing all intentions and calculations expressed on paper are the laws of the land in which you intend to operate. For every statute on the books today, new regulations emanating from government decree may spring up tomorrow to plague you, for the foreign government, in effect, shares in and completes the partnership triumvirate.

Despite these imponderables there are thousands of license agreements at work today, many dating back one, two, or three decades, pointing up the resiliency and value of this arrangement.

But if you are to put this system to

use, reap profits instead of problems, keep in mind that the contract you write will live or shrivel according to the mutual intent as well as the content. So put first things first; investigate before you invest. Research the market independently, study the field of prospective licensees, and don't leap at the first offer. The contract you write should be predicated on facts, not promises. And the clauses themselves are bargaining points of varying value. To evaluate these sensibly requires knowledge of the man as well as of the market. You are, in effect, exchanging a contract for cash and the royalties in your pocket will run in direct proportion to the wisdom of your choice of licensee.

Within the framework of the typical license agreement are certain key clauses that apply to almost any type of product.

Extracted and reviewed in concise form are the 33 major check points below, which are considered basically adequate to safeguard the license agreement from the cradle to the grave. Variations on the theme are numerous, to take account of special conditions. But, in essence, here is a program that can lead to profits and possibly reduce the tortuous trials that can beset any U.S. manufacturer on the route to world markets. If the enumerated check points seem heavily one-sided in favor of the U.S. manufacturer, this is because of two basic realities: (1) The U.S. manufacturer risks more than the licensee, since he is exposing an investment in existing or potential sales and profits to an experiment of uncertain dimensions. (2) A *licensors'* market exists today, with many foreign companies eagerly competing for U.S. know-how and product rights. In general, therefore, the U.S. manufacturer is in an advantageous bargaining position. (In some cases licensees are larger and stronger than the average U.S. small- or medium-sized manufacturer, and bargaining strength evolves from the product rather than from relative fiscal weight.)

Here are the 33 check points to consider carefully in approaching any license arrangement.

1. **Performance is the keystone of contracts.**

To a considerable degree performance can be spelled out in terms of current and future needs. But the complexion of markets can change. So keep the door open for necessary revisions in the contract to reflect expanding opportunities. And don't overlook the possibility that you may discontinue certain licensed products and substitute new items. Reserve the right to do this without obligation, other than reasonable notice to the licensee.

2. **The span of your contract must be fixed, but intermediate escape points should be included.**

While terms of five or ten years are typical, it is sometimes difficult to assess the proper period of time required to bring a program to fruition, for markets and men vary in capacity. Too short a trial run may discourage the licensee; one that is too long may encourage dilatory development with loss of real potentials and profit. The sensible thing is to include a clause allowing prior termination of the contract after a minimum trial period of one or two years. (The intermediate cut-off provision must, of course, include reasonable notice of cancellation.) But don't ignore the possibility that the relationship will thrive. Include an automatic renewal clause too.

3. **Execute your contract in the United States.**

Since the license to manufacture your products abroad is, in effect, an extension of your own activities, and since most contracts call for compensation in U.S. dollars, it is legally desirable to execute the contract formally in the United States. And be sure to include specific reference to whom and where official notices are to be sent, and whether by cable or registered mail.

4. **Semantics may be a poser. Write the contract in English, define the end-use of the licensed product or products, spell out the processes. Clarity, not brevity, is important.**

A *mechanical* valve regulates the flow of liquids or gases; an *electronic* valve controls the direction of current. Detailing the end-use of the product eliminates confusion, especially where the same words or terminology may have application in wholly separate fields.

And write the contract so that, if in the future none of the original negotiators is left, the intent is clear. This applies equally to amendments.

5. **The life of your agreement will be burdened with special taxes. Provide for these.**

Stamp taxes and filing fees are just part of the tax picture abroad. New taxes may pyramid operational costs faster than you can anticipate. Since they are purely local in character, they should remain a local charge wholly payable by your licensee.

6. **The foreign government is in effect a silent partner in your enterprise; observe and require observance of all regulations.**

In many foreign countries there are government regulations requiring approval and registration of license agreements and authorization for remittance of foreign exchange. To avoid painful penalties insist upon strict compliance by your licensee with all existing and future regulations governing license arrangements in his country. The burden of compliance and proof should rest squarely on his shoulders. Equally, consider that your product may be a strategic item, may involve U.S. Government approval of release of manufacturing rights and know-how abroad.

7. **Safeguard your trademark and your patent.**

The trademark laws of each country may vary. Compliance with prescribed notations and markings must be observed to protect your trademark. Give some thought to a separate contract covering trademark licenses, but not fiscal details. It gives you greater leeway to recapture the trademark part of your license agreement in the event of trouble. And if you have patents registered in the United States, be sure that you make prior application in the country of license. Better still, apply for patent protection in as many countries as feasible.

8. **Use your own trademark.**

Where your trademark is firmly implanted in the minds of world cus-

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ABOUT THIS ARTICLE • The 33 basic check points in this article were developed by Joseph S. Cardinale, partner in the law firm of Momsen & Freeman since 1946. He has lectured and written extensively on international law.

From 1942 to 1946, he was executive secretary of the Inter-American Commercial Arbitration Association and director of International Arbitration for the American Arbitration Association. Recently he served as chairman of the Workshop Seminar on Foreign Licensing sponsored by the International Management Association. He is on the executive committee of the International Section of the New York Board of Trade and a member of the National Foreign Trade Council.

tomers, its use by the licensee is a "must." Every day and every dollar you spend in a foreign market should publicize your own trademark. This protects your investment in the future should you have to change licensees or go into direct manufacturing yourself. You may be tempted to use your licensee's trademark, because it has already won acceptance or for other reasons. But remember that, if the connection is severed, you will have spent the contract period building up a potential competitor, weakening your own position in the market. A compromise: Combine *both* trademarks if absolutely necessary. But register the dual mark in your own name.

9. **Your trade name is a precious asset. Don't lease it, for your licensee may never release it.**

The use of your name as part of your licensee's corporate trade style may cause you trouble should you decide to terminate the agreement. Once they are registered locally, it is difficult to recapture trade names, especially as the duration of the registration period probably will not coincide with your contract term. Insist that your licensee maintain a separate identity in his corporate name and avoid future complications.

10. **Changes in designs, techniques, parts, procedures should be tightly controlled and subject to your approval.**

Occasionally, new and purely local factors may inspire a deviation from your standard procedures, especially in the use of new parts. Operationally these adjustments may be desirable, for your licensee bears the brunt of performance and his recommendations are attuned to practical considerations. But always reserve the right of prior approval.

11. **The right to assign should be exclusively yours.**

Your contract may be assigned directly or indirectly. Directly, your licensee may decide to abandon your product and suggest its assignment to someone else. You should have the sole right to accept or refuse. Indirectly, the controlling ownership of your licensee may change hands. In effect, your contract is now exposed to a new, untried management. If controlling interest is to be yielded to new principals by the licensee, stipulate that you must be so informed in ample time and reserve the right to terminate or revise the contract. Under no circumstances is the contract to imply that your licensee is your agent, can act in your behalf.

12. **Keep a tight rein on sub-licensing: It can expand your scope but compound your problems.**

Sub-licensing, within or without the area of licensed operations, may be accepted as a logical and desirable element because of geography, exchange problems, or other tempting inducements. Insist on prior approval of all such operational extensions of your agreement. Whether to hold your direct licensee responsible for performance and the collection of royalties is a moot point. Each sub-licensing arrangement should be analyzed individually, the pro's and con's of divided responsibility weighed carefully. The popular tendency is to contain each sub-contract within the orbit of the prime licensee, hold him fully responsible. But circumstances alter cases. An effective rule of thumb would be to evaluate the sub-licensee by the same standards as the direct licensee. You should consider the possibility of direct control, with a reverse royalty

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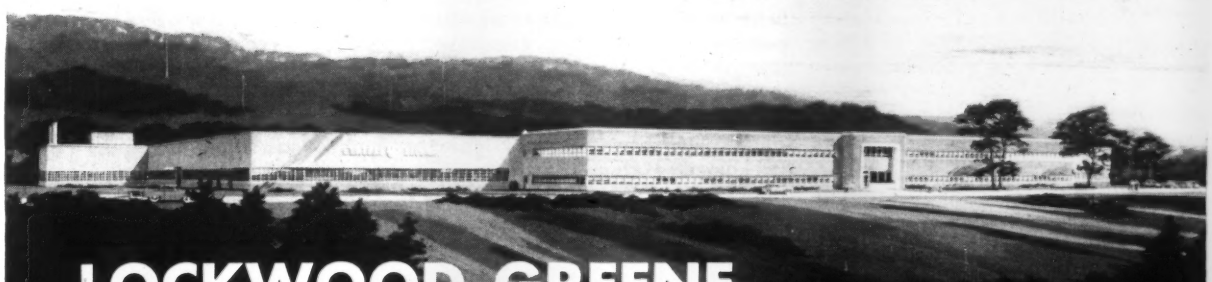

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13. **Waivers can undermine the strength of your contract.**

The fact that special circumstances urge or impel you or your licensee to deviate from the precise performance of your contract should not be allowed to invalidate the entire arrangement. Your right to alter provisions, permanently or temporarily, should be clearly stipulated as an integral part of the contract. Waivers of performance or conditions should be indicated as isolated revisions within the structure of the contract, with alterations being made while "business goes on as usual." Waivers should protect the right to *change*, not give the right to *destroy* the contract.

14. **Make sure you are getting the substance, not the shell, of your patents if you have to recapture; and watch out for infringement.**

Separate registration of your patents or development of cross-patents may be required in creating a working arrangement with your licensee. If the bad day comes when you have to pull back your patents, make sure you can get them in whole and not diluted form. Stipulate that, when the contract is terminated, the licensee must divest himself of all direct or indirect interest or control of any and all patents touching on your product, *in which he has any outward or covert interest*. And patent infringement by your licensee against a third party is always a bugaboo; make him responsible if he infringes.

15. **Your "know-how" is a vital asset—guard it well.**

In the event of termination, physical recovery of your models, designs, formulae, and other tangible elements of the license agreement gives you only partial protection. It is the intangibles you have to worry about. The "know-how," once laid bare, is difficult to recapture. Your only safeguard is to stipulate that all such information is confidential, may not be used by, sold to, or transferred to competitors or continue to be employed in any form by the dismissed licensee. Failure to comply with this instruction should be clearly designated as constituting damages, extending beyond the cancelled date of the contract.

16. **Indoctrination of "know-how" should be paced out by reason and not by rote.**

The core of a contract in many cases involves revealing all manner of techniques and procedures. During a trial period it is important to limit such data to the capacity of your licensee to absorb *and use* your special techniques. Too much time and money can be spent on training in procedures that cannot be immediately applied. The danger of functional indigestion is compounded by the possibility that, if the contract has to be cancelled, you will have given away valuable trade secrets, an attractive commodity to any potential or actual competitor.

17. **Supplying "know-how" may involve supplying key personnel; avoid tight schedules.**

Furnishing engineers, technicians, and other key personnel may be a vital part of your license agreements. Reserve the right to export your personnel under schedules convenient to you, both as to time and number. Since members of such a "task force" are your employees, you should have blanket authority over what they do, to whom they report, how long they stay, yielding the right of supervision only to the degree and for the time necessary to do the job. It is customary for the licensee to pay all direct and indirect costs incidental to importing and maintaining this temporary crew.

18. **Don't "brainwash" your licensee by insisting on complete and rigorous adherence to your own systems.**

One of the important by-products of a license agreement can be the know-how, technical skills, and new products developed by the licensee. This has been especially true in the chemical and pharmaceutical fields, and it may be the case in many other fields in the future. Encourage independent research and the reverse flow of "know-how," and insure reciprocity by stipulating constant and complete exchange of data.

19. **Exclusive rights may limit the perimeter of your sales and profits, may impinge on U.S. anti-trust laws.**

In the initial months, even years, of a contract, your licensee may be unable to fill the current requirements of his market. This makes both of you vulnerable to competition. You can bridge the gap by retaining the right to export your products to the licensed area, providing equitable compensation or other considerations, until your licensee reaches adequate production levels. And give some thought to retaining permanent right to direct sales to customers acquired during this period. Your licensee may be in competition with them, producing a related product (noncompetitive to yours) in which the licensed part is but a component. Example: Assume your product is a compressor, used as a component of refrigerators selling under several competing brand names, one of which is produced and marketed by your licensee. Placing all sales of your compressors in his hands may tempt him into monopolistic practice with its obvious evils and dangers. And his competitors might quickly rid themselves of your product under the circumstances.

To shut off such old established outlets may encourage accelerated local or foreign competition. The more the exclusive rights clause retains flexible features, the more you both enjoy a device that can be used for instead of against your mutual interest. And remember the U.S. anti-trust laws; they extend in effect beyond our national boundaries. Cartelization, so popular in Europe, is a particularly sensitive point. Whatever the standard procedure abroad, make sure it dovetails with the ethical legal pattern.

20. **Geography should not define sales boundaries.**

The running tide of import and dollar exchange controls may create a powerful drag on direct (export) sales of your products in areas removed from or contiguous to the licensee's area of operations. But your trademark can still penetrate to "hostile" (used in the most liberal sense) markets by carrying a "Made in Country X" and not a "Made in U.S.A." label. You won't get your dollars directly but you can protect your markets—even expand your sales through this roundabout procedure. It is even possible that your licensee may wind up doing more "export" than "domestic" business. (But make sure his export activities do not collide with distribution arrangements or licensing agreements in these outside areas.) This involved method can help preserve continuity of sales, keep alive your trademark in the closed markets of the world. *Item:* Today this very program motivates numerous licensing agreements, explains why manufacturing licensing agreements are created in markets whose local consumption would not

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0109 WANT TO PURCHASE DIRECT ONE DIAMOND CUTTING MACHINE. TAN JEWELERS, NO. 62 DJL. Bubutan, Surabaya.

NETHERLANDS

0109A Wish to purchase direct first-class quality nylon twin-sweater seats for women. N. V. MODEHUIS ABASSADE, 29 Hoogstraat, The Hague.

VENEZUELA

0110 IMPORTING DISTRIBUTOR WISHES TO PURCHASE CANNED FRUITS AND VEGETABLES DIRECT. E. BENEDETTI F., No. 88 Pajaro a Curamichate, Aptdo. 622, Caracas.

0111 Importing distributor of machinery and spare parts wishes to purchase direct agricultural machinery and supplies. ALFREDO WALLIS B. & Cia., S.A., 3 Calle Samanes, la Florida, Aptdo. 2574, Caracas.

TO SELL

BELGIUM

0112 BELGIAN HANDMADE LACES. BELGIAN LACE CENTER, 2 Steenhouwersdijk, Bruges

BRITISH EAST AFRICA

0113 A variety of curios handmade from local ebony wood for export direct or through agent. Assorted samples $2.80. U. S. MOLOO BROTHERS & CO., Ltd., P. O. Box 53, Dar es Salaam, Tanganyika.

COLOMBIA

0114 CAN SUPPLY MONTHLY 30 TONS DRY ANIMAL BONES (DIRECT EXPORT ONLY). STEVE FROLICH, Apartado Aereo 1435, Cali.

DENMARK

0115 Wish to export direct or through regional agents in New York, Chicago, San Francisco, and New Orleans, water pumps, including centrifugal pumps, automatic shallow-well pumps, deep-well piston pumps, and deep-well turbine pumps. Illustrated leaflets available. REFIMEX A/S, Sondergade 3, Randers.

0115A BURLAP BAGS FOR DIRECT EXPORT. RYENS SAEKKEINDUSTRI, 21 Havnegade, Odense.

0116 Wish to export direct or through agent, high-quality photographic enlarging equipment for amateurs. IB GAD ANDERSEN, Blok 16/20 Sollerod Park Holte, Copenhagen.

ENGLAND

0117 SMALL AGRICULTURAL TRACTORS. DIRECT OR THROUGH AGENT. LUMBER PRODUCTS LTD. 120 Bishopsgate, London E. C. 2

0117A Marcasite jewelry set in silver or other metal for direct export or through agent. D. H. PHILLIPS LTD., 4/5 Holborn Circus, London E.C. 1.

FRANCE

0118 For export direct throughout the United States (except California and Texas) the following wines: Cotes-du-Rhone, Tavel, Hermitage, Cote Rotie, and Chateauneuf-du-Pape. ETABLISSMENTS PERE ANSELME, Chateauneuf-du-Pape, Vaucluse.

0119 Approximately 20,000 aviary-bred parakeets available annually for direct export. Minimum order 20 pairs of different colors such as cobalt, green, yellow, blue, turquoise, mauve, and white. Each shipment will be accompanied by Department of Agriculture sanitary inspection certificate. Price list available. LES ETABLISSEMENTS RENE BASTIDE, 20 Avenue de Frizac, Toulouse, Haute-garonne.

GERMANY

0120 Direct or through agent musical base for ashtrays, dishes, boxes, and so on in red; white; red dots on white. Gift boxed. Illustrated leaflet available. HEINER MUELLER & CO., Weserstrasse 28, Rinteln/Weser.

0121 Wooden household and kitchen utensils for direct export. Merchandise worth $30,000 available monthly. Descriptive catalog (in German) with price information available. JAKOB BISHOFF O.H.G., 36 Ulmerstrasse, Reichenbach/Fils.

0122 Wish to export direct or through agent large quantities of selenium rectifier plates. Illustrated leaflet available. WALTER BRANDT GMBH, 68 Heidensche Strasse, Lage/Lippe.

ITALY

0122A Finished wool and mixed wool articles, including baby blankets and woolen lining. Wish to export direct. METEOR EXPORT, 43 via Andrea del Castagno, Florence.

THAILAND

0123 High-Quality handmade bronze cutlery. Wish to export direct or through agent, ultimately appointing sole distributors. THE PRATIB CO., LTD., P. O. Box 533, Bangkok.

UNION OF SOUTH AFRICA

0124 AFRICAN CURIOS AND BEADWORK, (SAMPLES OF BEADWORK AVAILABLE). AFRICAN EXPORT IMPORT, 212 Oxford St., E. London.

TO REPRESENT

VENEZUELA

0125 AGENCY SOUGHT FOR ADVERTISING NOVELTIES., EMPRESAS TAZACORTE, Quinta Maite, Av. Orinoco, Bello Monte, Aptdo. 2473, Caracas.

0125A AGENCY SOUGHT FOR BARBERSHOP EQUIPMENT. CORVENSA-CORPORACION VENEZOLANA de IMPORTACIONES S.A., Edificio Suzet, Oficina 4 Avenida Principal El Bosque, Chacaito, Estado Miranda.

0125B AGENCY SOUGHT FOR AUTOMOBILE SPARE PARTS AND ACCESSORIES. C.A. COMERCIAL SOSZ MARTINEZ, 61-A Palo Blanco a Palo Negro, Aptdo. 975, Caracas.

MEXICO

0126 Interested in representing U. S. firms for foundry equipment, machine tools, and industrial equipment. Can import directly. VOLVO MOTORS DE MEXICO, S. A. No. 100–208, Mexico, D.F.

SWITZERLAND

0127 Agency sought for well-known brands of very good quality goods suitable for sale through tobacconists and kiosks, drug stores and pharmacies. R. C. Andreae, Arlesheim Bei Basel.

BELGIAN CONGO

0128 Agency desired for general trade goods and novelties for the African market. SCEI, B.P. 684, Leopoldville.

COLOMBIA

0129 Wish to obtain agency for industrial electrical equipment and supplies. Please send catalogs with offers. DN-WALTER LULLEMANN, No. 6-65, Carrera 16, Cali, Valle.

IRAN

0130 WANT AGENCY FOR INDUSTRIAL AIR-CONDITIONING EQUIPMENT. IRAN NATIONAL TRADING CO., Iran-Ghard Bldg., Teheran.

PERU

0131 Wish to represent manufacturers of nylon piece goods; embroideries; ladies' nylon hosiery; tulles, Also canned meats, fruits, vegetables, and so on. MIGUEL KOROLEFF, P.O. Box 937, Lima.

SOUTHERN RHODESIA

0132 IMPORTING DISTRIBUTOR SEEKS AGENCY FOR TEXTILES. OVERSEAS SALES CORP., LTD. 46 Rezende St., Salisbury.

BELGIUM

0133 Agency sought on an exclusive basis from U. S. manufacturers of oil burners. ESTABLISSMENTS MALONI, 50 rue Josse Impens, Brussels

BRAZIL

0134 Wish to represent American manufacturers in general. IMPORTADORA e EXPORTADORA TRANS-ATLANTICA LTDA., Rua Albuquerque, 1203, Sao Paulo.

0135 Wish to represent American manufacturers of oil well equipment. RIMEX, Sociedade Tecnica de Representacoes e Exportacoes Industrias Ltda., Avenida Rio Branco, 52, sala 1901, Rio de Janeiro.

even support a low-level manufacturing activity. Because it expands the sales horizon, the contract becomes more valuable, encourages more cooperation by the licensee.

21. **Encourage use of components, replacement parts, and accessories produced or bought by you.**

The emphasis here lies on the parts, materials, and accessories you do *not* produce. By acting as a central buying office for components, or even raw materials, you can create profitable revenue, develop the benefits of centralized buying for domestic and overseas needs. Profits from this subsidiary activity may sometimes exceed revenue from royalties.

22. **Don't compete for time.**

As an independent operator, your licensee may be working with other noncompetitive lines. Or he may wish to produce or promote new items. To prohibit this would be unreasonable, if not impossible. Raising performance quotas may pressure him to give adequate time to your products, but potentials that may outstrip these quotas are also to be considered. Reserve the right to examine each new activity of your licensee; weigh it carefully in terms of time-availability and its possible influence on future interest. Lack of interest is an insidious condition; it can be eating away at the core of your contract structure even while performance is healthy on the surface. Retain the right to cancel if you find you have to compete for interest.

23. **Royalties may be transitory; stock participation yields more permanent values.**

A license is a temporary arrangement, provides an uncertain equity. Reinforce this by obtaining a stock participation in the licensee company, including as a "must" the right to appoint at least one director to the board. This gives you an observation post, allows you to check harmful internal policies. Stock ownership provides ancillary benefits in all lines handled by the licensee, creates capital equity, and to a degree may also multiply your earnings through dividends and capital growth.

24. **A sliding percentile scale of royalties is usually desirable, but be sure a minimum yield is incorporated.**

A royalty rate specified in percentages provides a more elastic, safer term of reference than one charted in dollars and cents. Important to

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consider are inflationary trends, possible devaluations that can vitiate the profit factor for both you and the licensee. A scale working in inverse proportion (diminishing percentages against increasing sales volume) provides inducement to expand, inspires broadening the market through lower consumer prices. But set up a minimum annual royalty. It will compensate you for your efforts, stimulate your licensee to devote proper time to your product. And an upward progression each year in the minimum royalty should also be considered. And if local laws forbid or make difficult initial payments to offset the cost of transferring "know-how" or training expenses, incorporate these in royalty charges in the contract, prorating the charge for research and development.

25. **Reserve the right to cancel if you can't get the cash.**

Remember that the dollar value of your contract may be weakened by local currency difficulties. Devaluation and embargoes on dollar transfers are always a possibility. Retaining and reinvesting royalties and other license revenue may conflict with your immediate and long-term financial plans, particularly if the local picture is obscure. Retain the right to cancel on the cash clause even if all other performance is satisfactory. In any event, be sure to define in the contract the method of computing the exchange rate. These rates vary from day to day; averages or rates in effect at royalty payment dates can be used as a base.

26. **Look into U.S. Government guarantees.**

Your Government, as part of its program to encourage international trade, offers as one feature the ICA Conversion Guaranty. This is a form of insurance guaranteeing conversion of royalties to dollars; and you can even get protection against expropriation. For information write to: The Investment Guaranty Branch, The Export Import Bank of Washington, Washington, D.C.

27. **Adequate production means adequate inspection.**

Output per hour, per day, per week is a statistic that is heavily influenced by the quality and use of men, machines, materials. Here inspection becomes a powerful force to create a common denominator of efficiency. Definitively, this means constant counsel, not sporadic criticism,

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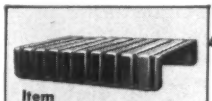
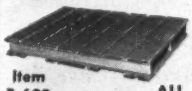


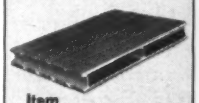
Item B-527 — Corrugated ALL-STEEL PLATFORM

Item C-1315 — DROP BOTTOM BOX



Item B-629 — ALL METAL PALLET

Item D-28 — SLOPED BOTTOM BOX



Item B-413 — ALL-METAL PALLET *Double Face*

Item 1024 — STORAGE BIN *Stacking Type*

Item C-496 — STACKING RACK *Safety Interlocking Feature*

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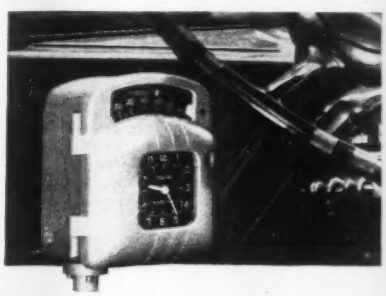

Tachographs provide constant supervision, encourage safer driving habits . . . resulting in fewer reportable accidents and lower insurance rates.

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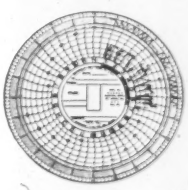

S57-5

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with the sole objective of developing an atmosphere of cooperation. To analyze records and reports from a remote point makes for inaccurate interpretation. Periodic on-the-spot observation is a "must" if the several ingredients of manufacturing procedure are to be coordinated and profitably utilized. The ills of absentee management are obvious; don't fall into this trap.

28. **Interim production and sales reports are a "must"; the right to independent audits, a safeguard.**

Especially in the opening months (or years) of the contract, it is highly important to require frequent production and sales reports from your licensee. Quarterly reports are usually popular and allow for rapid corrective action. But insist on the right of independent audit at any time. You may not exercise this right at first, but its very presence will instill respect for accuracy. The common U.S. practice of employing outside auditors as a check on your own business activities will justify this provision. Exercise it early to avoid future resentments.

In a number of foreign markets there are branches of both U.S. and British accounting firms that have experience in this field and undertake this type of audit—use them.

29. **Watch for financial danger signals; bail out before bankruptcy.**

The fact that the licensee is paying your bills or royalties promptly doesn't necessarily mean he is treating all creditors equally. Insolvency, and its usual concomitant, bankruptcy, could cause you embarrassing involvements, serious losses. Carry a protective clause for immediate and simultaneous termination of the contract in the event of this contingency. And keep an independent running check on your licensee's business record and financial position.

30. **The warranty you give today may come back to roost in the courts tomorrow.**

Warranties, the outgrowth of quality control, are a popular development in the United States and represent a valuable sales tool. But what of the products produced by your licensee? The patents and processes you release are a fluid asset, and even minor changes can convert them into uncomfortable liabilities. Don't second-guess your licensee's ability to absorb and use your processes effectively. Keep yourself war-

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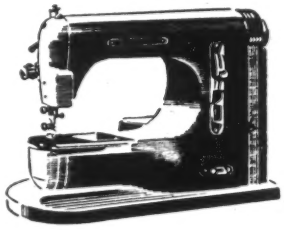

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III **INTERNATIONAL IMPORT INDEX**

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The Ten Most Common—and Most Costly—Mistakes in Plant Location

A survey of more than 1,000 major industrial concerns that have relocated or opened branch plants at new sites reveals that not all have reaped the advantages they planned on. Now they know where they went wrong, and have frankly reported their mistakes to Leonard C. Yaseen, who tells the story in the March issue.

ranty-proof. There is always the possibility of misunderstanding or misuse of your production techniques. Don't give any warranties, don't let any be given, without complete and constant inspection of the local product bearing your name or mark. Any warranty should be a matter of precisely defined authorization by you and not left to the whims or fancies of your licensee.

31. **Control your licensee's advertising; it can misrepresent your product.**

What your licensee says about your product in his advertising may be more fanciful than factual. And, once disenchanted, consumers are difficult to win back. Your own tested advertising and merchandising program can serve as a useful blueprint. It can be easily modified or adjusted to coincide with your licensee's local "know-how." Keep constant control of this area of activity and keep it always subject to your prior approval.

32. **If you can't reconcile your differences, don't argue in court but arbitrate.**

It's natural to insist that the interpretation of any contract clause be governed by laws prevailing in the state in which your company is incorporated. Almost all of the 48 states today have laws recognizing arbitral procedures. But this does not automatically provide umbrella-like protection. The arguable point is that any provision may run contrary to local (foreign) laws; and enforcement by legal suit or other redress may be difficult, can be impossible. The essential compromise is to provide for arbitration in the United States. Use the standard arbitration clause of any one of the recognized arbitration associations. This provides proper facilities for arbitration, follows recognized and standard procedures. *Item:* The facilities and services of the American Arbitration Association and the Inter-American Commercial Arbitration Commission are widely used.

33. **Finally, if you have to cancel, consider "momentum."**

Contract termination is one thing, actual discontinuance another. There may be inventories, orders, many loose ends to tie. To cover yourself during the period of separation, write in a "momentum clause," which usually extends the payment of royalties beyond contract termination.

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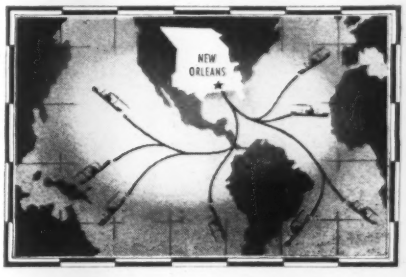

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"Sidewinder" was developed by the Naval Ordnance Test Station of the Navy Bureau of Ordnance at China Lake, California. Philco assisted NOTS in the research and development program, and performed the subsequent engineering required for manufacture of the missile. "Sidewinder" is *now in full production at the Philco Government and Industrial Division.*

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ATOMIC ENERGY FOR YOUR BUSINESS *by Arnold Kramish and Eugene M. Zuckert. David McKay Co., Inc., 55 Fifth Avenue, New York, 269 pages, $3.95.*

Just what atomic energy will mean to your business in terms of new markets, new products, and decreased production costs is something you'll have to figure out on your own. These authors are mainly concerned that business men have enough background knowledge to find out—and thus to assume enough responsibility for commercial atomic power development to save it from "permanently passing into the hands of government."

The history of atomic power development and its political consequences are compactly presented; so are remarkably clear and readable descriptions of basic nuclear chemistry and physics. Appendices contain further technical data, and suggestions for more detailed reading.

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THE MASTER GUIDE FOR SPEAKERS *by Laurence M. Brings. T. S. Denison & Co., 321 Fifth Avenue, South, Minneapolis 15, 409 pages, $4.95.*

"Get a good beginning and a good ending; stuff it with whatever you please."

How to open and close a speech effectively is the main concern of this book, which is good reading whether or not your speeches need improvement. It also provides concrete answers to such questions as: What do you say when the chairman has consumed half your speaking time before introducing you? When he embarrasses you and the audience by over-flattery? When you have to face hecklers or a hostile audience?

The book differs from the majority on speech-making in consisting almost entirely of illustrative excerpts from masters of the speech, classical and contemporary. All the material will be helpful in suggesting fresh speech techniques. Much of it undoubtedly can be stolen outright.

Managing for tomorrow

BUSINESS ACTION IN A CHANGING WORLD *edited by Henry C. Thole and Charles C. Gibbons. Public Administration Service, 1313 East 60th Street, Chicago 37. 319 pages, $5.*

What current changes will require of tomorrow's management is the central theme of this book—a collection of 27 articles from business periodicals. About half the selections treat the subject from a broad perspective. The rest explore labor problems and specific areas, such as product planning and capital productivity.

Gaging executive leadership

EXECUTIVE PERFORMANCE AND LEADERSHIP *by Carroll L. Shartle. Prentice-Hall, Inc., Englewood Cliffs, N. J., 302 pages, $4.50.*

Dr. Shartle is chairman of the Personnel Research Board of Ohio State University, where a series of leadership studies has been conducted. In this book he presents findings of that research, and of other studies in the

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Any or all of the factors important to your consideration will be covered in a confidential report to you—tailored to your needs. It will be prepared by a professional and experienced staff to cover either New York State locations of your choice, or, if you wish, sites which we will select on the basis of your needs.

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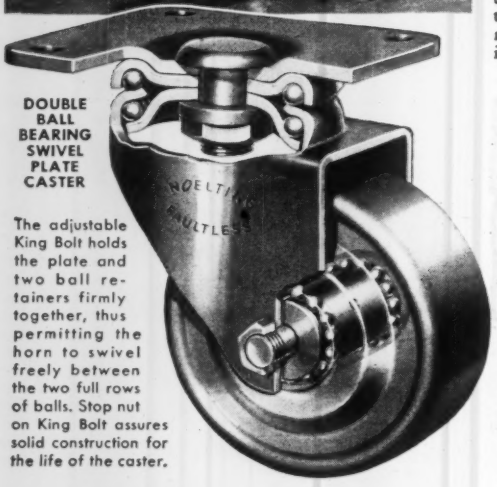
COMMISSIONER OF COMMERCE

NØELTING
Faultless CASTER
MATERIALS HANDLING FACTS

INCREASING BY 30 TIMES THE NUMBER OF LOAVES OF BREAD HANDLED AT ONE TIME, BY ONE MAN, . . . WITH FAULTLESS CASTERS

That's quite an achievement—yet Barbara Ann Baking Company, Los Angeles, did it with a simple handling system, featuring Faultless Castered trucks. *Products of similar size might be handled just as economically IN YOUR PLANT.*

First, freshly baked bread is taken from the ovens, loaded on multitiered trucks and moved to a temporary storage area. Each fully loaded truck takes 270 loaves of bread. The trucks are temporarily parked side by side for maximum saving of valuable floor space. Next the trucks are easily and quickly moved to a bank of combined slicing and wrapping machines. Finally, the sealed and attractively packaged bread is stacked on wire pallets and moved in bulk on bread racks to city delivery trailer trucks. With this type of castered truck handling system, there is no costly unloading and reloading between operations.



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Faultless 1100 Series Casters are used extensively in the Barbara Ann Baking Company operation. The object of this bread handling system is to increase the number of loaves that can be handled at one time by one man. This Faultless installation *has multiplied as much as thirty times* the number of loaves one man can handle in the transfer operation from baking ovens to wrapping machines. Barbara Ann's polished hardwood floors are fully protected by Faultless Plaskite and Drawn Steel Wheels having smooth, rounded edges which will not chip, mar or scratch.

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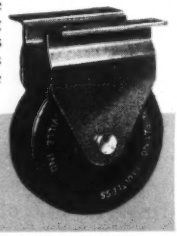

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field of executive behavior, selection, and development. Although evidence in these areas is so far inconclusive, material presented is worth study by anyone concerned with selecting and training managers on a more scientific basis.

A military approach

THE PATTERN OF MANAGEMENT *by Lyndall Urwick. University of Minnesota Press, Minneapolis, 100 pages, $2.50.*

Based on a series of lectures given at the University of Minnesota, this is a summary and synthesis of the principles of management set forth by the best-known thinkers in the field—Frederick Taylor, Henri Fayol, and the rest. The comments of the author, who is himself an authority on the subject, are interesting and thought-provoking, but some readers may dislike the authoritative cast of mind revealed at every turn. Col. Urwick's evident admiration of military organization and practices is occasionally somewhat irritating.

Business biographies

THE ART OF SUCCESS *by the Editors of* Fortune. *J. B. Lippincott Co., 521 Fifth Avenue, New York 17, 302 pages, $5.*

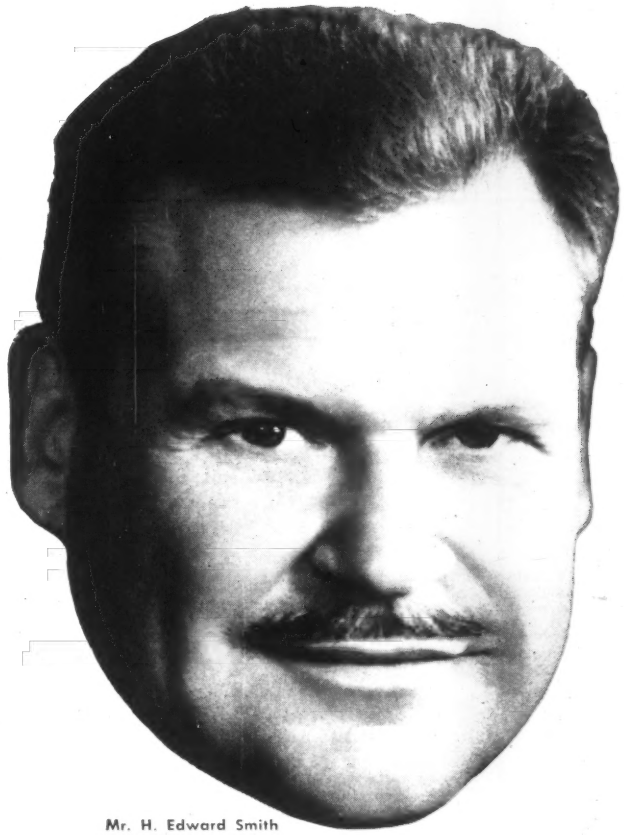
This book is a collection of compact and conservative biographies—partially personal but mainly business—of 21 eminently successful Americans. Its success is thus dependent almost entirely upon your interest in the careers of the personalities. Among others, these include: Harlow Curtice, Clarence Randall, Clint Murchison, Sidney Weinberg, John Galbreath, and the Rockefeller brothers.

In each case the material lacks any degree of critical interpretation—a quite understandable fact were it not for the promise of the title.

Capitalism's enemies

THE ANTI-CAPITALISTIC MENTALITY *by Ludwig von Mises. D. Van Nostrand Co., Inc., 120 Alexander Street, Princeton, N. J., 114 pages, $3.75.*

Dr. von Mises presents here a defense of capitalism that does injustice to his own cause. His central contention is that anti-capitalists are frustrated failures who cannot succeed in an economy that grants each person equal opportunities—so they blame the economy. No matter how true this may be in part, the theme is



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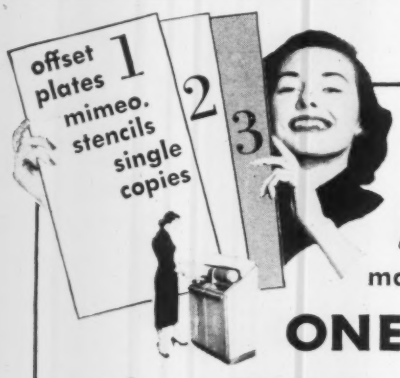

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tiresomely reiterated as though it entirely explained Communism away. The difficulty is that by simply classifying Communism as a sort of mental disease, Professor von Mises fails to deal with it as an economic and social reality. Furthermore, in arguing that capitalism is a universal panacea for all humanity's ills, he unintentionally paints about as dark a picture of frustration, discontent, and class resentment in America as the Communists could hope for. It is even more disconcerting to find at the close of the book that Dr. von Mises is not defending modern capitalism at all.

"What alone," he writes, "can prevent the civilized nations . . . from being enslaved by the barbarism of Moscow is open and unrestricted support of laissez-faire capitalism."

Ships and shoes and sealing wax

THINGS, *edited by Geoffrey Grigson and Charles Gibbs-Smith. Hawthorn Books, Inc., 70 Fifth Avenue, New York, 466 pages, $10.*

Things does not represent an attempt to be encyclopedic in scope. It's simply an intriguing collection of descriptive and historical data on over 200 objects as unfamiliar as a ziggurat or as familiar as a broom. Historical and practical interest has apparently been the editors' main guide in selecting material. *Things* contains 176 full-page illustrations, sixteen in color. In addition to its entertainment value, the volume should prove helpful in providing unusual facts for use in speeches.

Divining rods in use for finding metals, sixteenth century illustration from *Things*.

New giant press gives greater strength to modern steels and super-alloys

Stainless steels, chrome-molys, titanium, zirconium — these are some of the alloys that are writing new industrial history.

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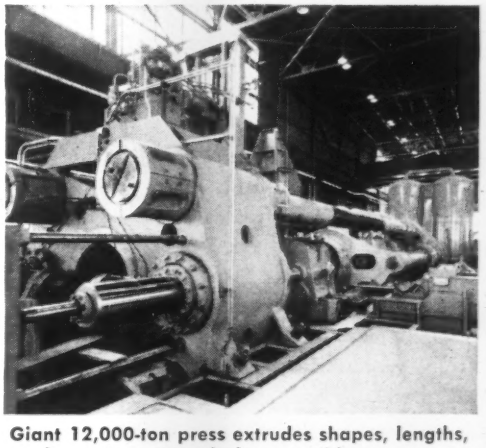

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COMPENSATION . . . *continued*

a crystal-ball kind of environment.

This analysis indicates that an executive is normally paid for the importance of his individual contribution to profit in terms of decisions made and influenced. Compensation thus varies both with the size of the company and the nature of the industry of which it is a part.

The small company faces a unique executive compensation problem. It can be a training ground for the larger companies. This means hiring good men, paying them the "going rate" while training them, and losing them to the big concerns when they are about to become really valuable.

This is the normal small-company approach, and it has a critical drawback. The small company ends up with mediocre—or worse—management, for the good men move on to tackle bigger opportunities.

The other approach is to search out the really critical jobs in the company and pay more than the big fellows to attract men for them. A small oil company has done this with outstanding success. It pays its geologists, landsmen, and geophysicists well above the going rate among the "majors," and has consistently turned in a better earnings statement than the industry as a whole.

It is also worth noting that the smaller company must keep two compensation truisms in mind:

1. The salary curve, as it relates to company size, flattens out at the bottom of the scale. In effect, the compensation versus size relationship is an "S" curve, flattening out at both the top and the bottom. This means there is a point of irreducible compensation minimum for the top management executive of the smaller company.

2. The percentage relationships between the compensation of the various executive levels narrow as company size drops below a certain level. Where the spread between a vice president and his key aid in large companies might be 40 to 50 per cent of the vice president's salary, in small companies it may drop to between 25 and 35 per cent. There is a certain minimum for these jobs, too.

The "company-size orientation" of compensation is normally limited to the management group. The pay of the chief executive and the men re-

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75 Offices in Greater New York

70 Overseas Branches, Offices, and Affiliates

Statement of Condition as of December 31, 1956

ASSETS

Cash, Gold and Due from Banks	$1,861,534,344
United States Government Obligations	1,184,240,523
State and Municipal Securities	393,110,101
Other Securities	103,286,313
Loans and Discounts	3,708,099,539
Real Estate Loans and Securities	30,358,844
Customers' Liability for Acceptances	76,872,228
Stock in Federal Reserve Bank	15,000,000
Ownership of International Banking Corporation	7,000,000
Bank Premises	35,916,024
Other Assets	11,561,124
Total	$7,426,979,040

LIABILITIES

Deposits		$6,672,390,362
Liability on Acceptances and Bills	$95,640,167	
Less: Own Acceptances in Portfolio	15,953,896	79,686,271
Due to Foreign Central Banks (*In Foreign Currencies*)		26,774,500
Items in Transit with Branches		7,064,915
Reserves for:		
Unearned Discount and Other Unearned Income		27,512,039
Interest, Taxes, Other Accrued Expenses, etc.		37,769,767
Dividend		6,400,000
Capital (*10,000,000 Shares—$20 Par*)	$200,000,000	
Surplus	300,000,000	
Undivided Profits	69,381,186	569,381,186
Total		$7,426,979,040

Figures of Overseas Branches are as of December 23.

$435,076,964 of United States Government Obligations and $28,136,600 of other assets are pledged to secure Public and Trust Deposits and for other purposes required or permitted by law.

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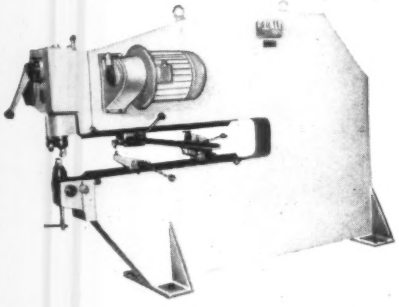

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porting to him is certainly affected by company size, but at some point down the line "company-size orientation" is replaced by a "market or skill orientation." Other things being equal, a district sales manager or a factory superintendent is likely to be paid about as much in the $15 million company as in the $100 million company, for his compensation is closely related to the going market for his particular responsibility.

Job Limitations

This is another way of saying that the top-level executive makes his own job, while the contribution of the district sales manager or the factory superintendent is largely limited by the scope of the job he holds. It explains why the compensation of a vice president responsible for a given function does not bear the same relationship to the president's pay in one company that it does in another. In a given industry, compensation averages may show the manufacturing vice president as second highest paid executive and the treasurer as third highest paid. But a specific company in this industry may reverse the relationship, making the marketing executive the second highest paid because of his over-all contribution to the decision-making process. Certain executives play a much more important role in shaping broad policy decisions than others, simply because the chief executive looks to them for advice and counsel.

Recognition of this fact, incidentally, is lacking in many salary programs today. They assume a more or less static, or average, relationship between the value of executive positions—based on salary surveys—without taking into account the "moving target" aspects of executive contribution. The individual executive frequently builds his talents into a job far more rapidly than the administrative process recognizes. There are a good many executives whose leadership and skill are being rewarded far below true value simply because the men are young, or have not held their jobs for a decade or more.

Skillful administration of executive compensation recognizes that different values are involved in the various aspects of compensation. There are four distinct categories to be considered: (1) promotion; (2) salary; (3) bonus; (4) fringe benefits.

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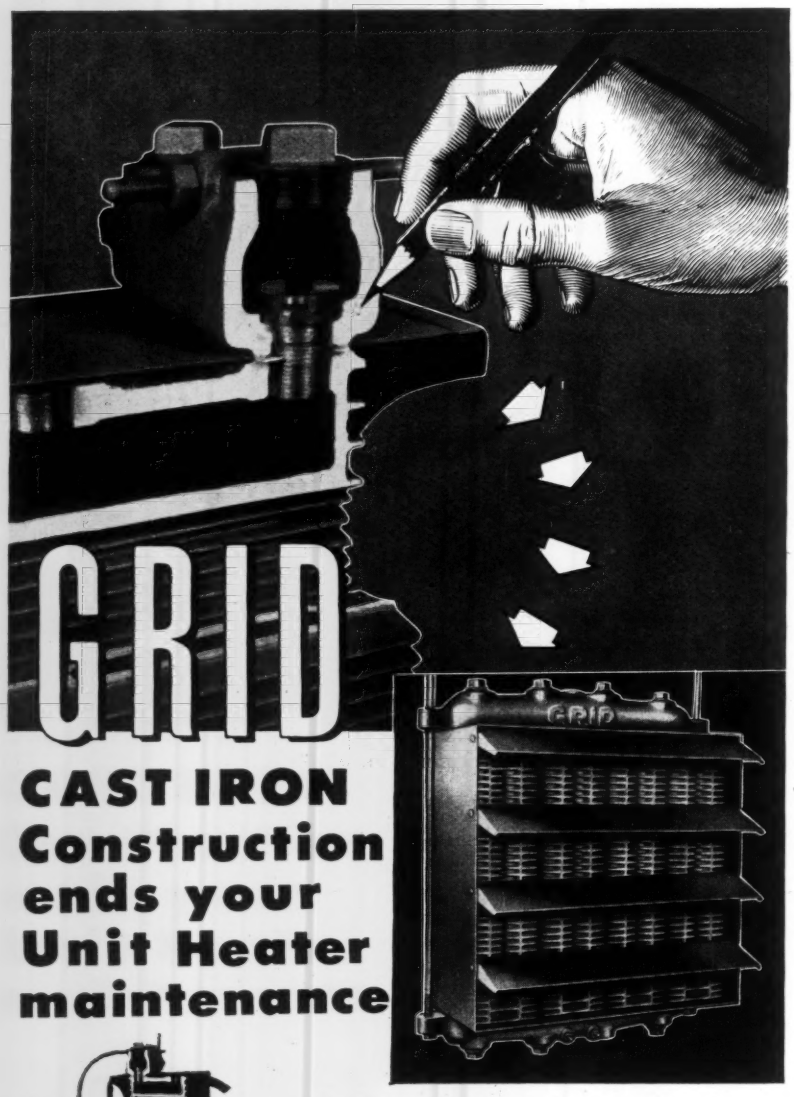

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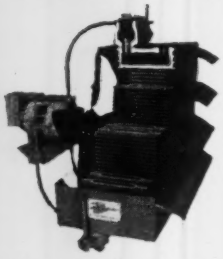

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ered by itself. Thus a pension or stock option plan must be assessed as part of an over-all compensation program.

A chance for promotion is by far the most powerful incentive, for promotion provides prestige as well as money. A well-known company is deliberately underpaying its lower executive echelons as a means of securing funds for expansion. It can do this because rapid expansion permits promotion of lower-level executives at an unusually fast rate. The top management is committed to a policy of rapid expansion, and to using promotion as a means of providing executive incentive.

The risk, of course, is that, while the compensation of the individual executive advances at a satisfying rate, the value of the job may fall too far behind the "market," or the rate of company growth may slow down. In another company, postwar expansion was so great that the average executive was promoted once every 15 months over a five-year period. During this span an effective team of executives was built up and turnover was negligible. But 18 months ago, turnover rose sharply. Study of the causes revealed that individual jobs were being paid substantially below the market. More important, company expansion had virtually stopped because of market saturation; hence the promotion rate had fallen sharply, to the point where no one could be promoted unless someone retired.

The unusually rapid postwar expansion in this company, and the powerful incentive provided by the high promotion rate, had obscured the *relative* drop in the compensation for the key positions. The company also had unwittingly adopted a practice of paying promotional increases at approximately the same rate as merit increases, and the "spread" between supervisor and supervised had dropped to a level so low that the incentive to advance from job to job was sharply reduced.

Salary is certainly the Number Two incentive. In their desire to develop a highly charged bonus plan, companies occasionally let salaries slip as bonuses rise—until a serious imbalance occurs. For example, a company with an extremely effective incentive bonus plan found it was having difficulty hiring good men for a key management training position.

Investigation showed that, while total compensation for this job—including bonus—was about 10 per cent *above* the market, the salary being offered new men was about 10 per cent *below* the market. Job applicants did not consider the annual bonus, 20 per cent in recent years, a part of income. So the company was getting substandard candidates for its above-standard compensation!

There is no question that effective executive incentive *can* be provided by salary alone. Many outstanding companies are doing just that. The penalty, of course, is reduced flexibility in rewarding and penalizing individual contribution, on the one hand, and a tendency toward a reduced profit-consciousness among individual executives on the other.

Here, again, administration is a critical factor. If the administrative procedure does *not* recognize the increasing, or decreasing, value of an executive job in relation to other jobs, a distortion is being built into the salary structure.

The Bonus Incentive

There is a good deal of evidence that most executive bonus plans fail to provide any real incentive, even though incentive is presumably their prime objective. This stems largely from poor administration rather than from any basic fault in the bonus device itself.

There are two general types of bonus plans: (1) profit-sharing, with bonuses figured as a percentage of salary; (2) incentive, with bonuses presumably varying with the contribution of the individual executive. The great weakness of the profit-sharing plan is that, since each executive shares in relation to his salary, it over-rewards the below-average executive and under-rewards the real profit maker.

Even the incentive-designed plans, in many instances, leave a good deal to be desired, usually because of critical weaknesses in administration:

1. Inadequate effort is expended in distinguishing the outstanding performers from the poor performers. There is a tendency to base rewards on the *impression* a man makes rather than on what he *does*. Poor organization—with its lack of clear-cut responsibility and authority—is a frequent cause of this inability to spot the outstanding and poor per-

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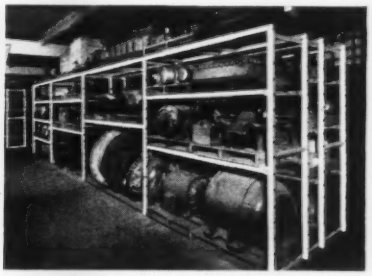

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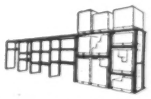

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formers. Committee management is another roadblock to effective discrimination between good and poor executive performance; so is the lack of adequate methods of appraising individual contributions to the team effort.

2. Inadequate rewards are given the outstanding performers, because poor performers receive too much. When outstanding performers realize what is going on, an incentive-in-reverse tends to develop.

3. Decisions on bonuses are inconsistent with stated objectives. When years of service become a factor in deciding who gets a bonus, or how much, the "performance" incentive is vitiated.

Rewards and Penalties

Really effective incentive plans are based on a "reward and penalty" philosophy. They recognize that if above-average rewards are paid to top performers, the poor performers must receive well below an average bonus. Indeed, there is every evidence that *no bonus* can be just as great an incentive as a big bonus. But the penalty aspects must be administered cautiously until skill is developed—and used fairly. The personality factor must never outweigh performance.

The incentive type of bonus plan is in the ascendant. This is the result, at least in part, of the steady decline in the proportion of funds available to provide direct rewards for individual accomplishment. With fringe benefits in some industries totalling upwards of 25 per cent of the payroll outlay, and a rising tide of deferred payments of all kinds being offered to executives, it is small wonder that top management is feeling the need for a more effective means of *direct* motivation.

By and large, the "fringe" compensation area involves a deferral of income, or some other tax advantage. The advantages and disadvantages of deferral are generally understood; the older and higher-paid executives look favorably on them, the younger and lower-paid men usually want their cash on the barrel-head.

The rigidities that the various deferral devices build into an organization structure are not so widely appreciated. Men who want to leave feel they cannot afford to because of the income they can receive only by continuing with the company. And

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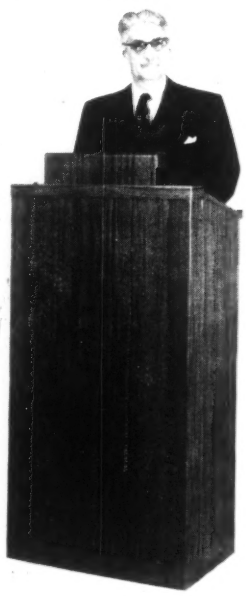

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dissatisfied executives, like rotten apples, contaminate their associates. The other side of the coin is the executive who is *not* fired, despite poor performance, because of the fringe benefits he would lose. The incentive for management to be charitable is substantial, even if a poor executive is blocking a better man. The fact that the weak sister is tolerated is a form of incentive-in-reverse.

Fringes Have Faults

The "fringes" have not been part of executive compensation plans for too long. One of the results of their relative novelty is that some of them are not soundly utilized.

For example, one large company installed a deferred-compensation plan for its executive group a few years ago. At that time, it was ecstatically received by one and all. Recently, two major faults have been discovered and loudly lamented:

1. The younger executives have recognized that 20 or 25 years is a long time to wait for a reward, and that they stand to lose this deferred income if they quit or get fired.

2. The real tax differential no longer looks as impressive as it was touted to be. A senior, and very highly paid, executive was told by tax counsel that the long-term tax differential between current income and deferred income in his case was practically nil. The reason? Current income increased his pension and savings plan benefits, both of which would be substantial on a post-retirement basis; and deferred income was added in sizable amounts to his already large—and relatively highly taxed—retirement income.

If incentive plans are to be productive from the stockholders' point of view, administrative skills must be increased. Sound techniques for appraising the performance of profit-responsible executives—such as division managers—are being used by an increasing number of companies. Perhaps the development of executive-appraisal techniques for this group has been spurred by the current wave of mergers and the divisionalization trend. But relatively little progress has yet been made in appraising the performance of other line and staff executives.

The most promising efforts in this direction involve what might be termed "programmed management."

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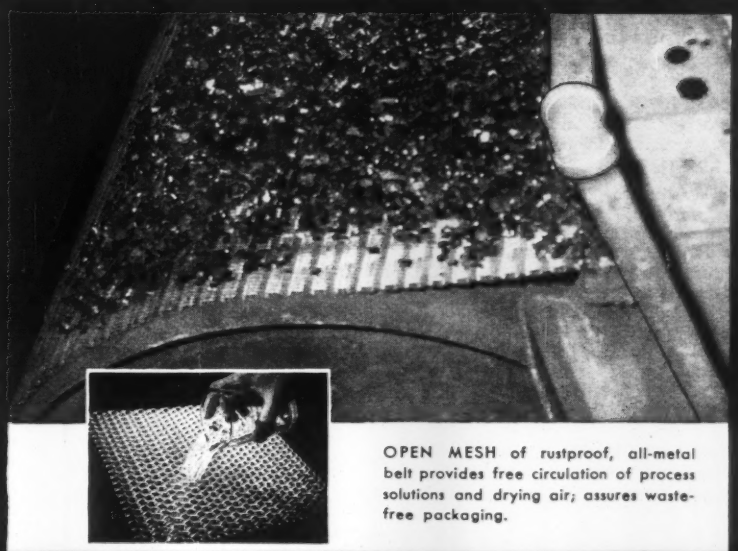

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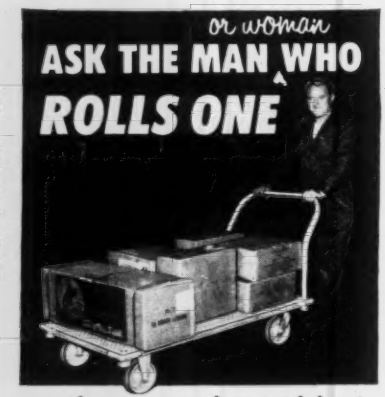

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Briefly, top management determines long-term company objectives—dollar volume, products to be sold, share of market, and the like—and allocates responsibility for accomplishing these aims among the various executives on a year-by-year schedule. This means spelling out what an executive is expected to accomplish at the beginning of the year, and then appraising his success in meeting this objective at the end of the year.

Skillful planning is obviously essential to such a program. So is the ability to be objective in appraising the effectiveness of individual executives in meeting their commitments. The great advantage of this approach is that it necessitates a careful thinking-through of company objectives, establishes the responsibility for attaining objectives on a coordinated basis, and reviews the success or failure of individual executives in factual terms.

A Move Worth Watching

A number of well-managed companies have made auspicious starts on such a program. It is likely that, at first, progress will be halting and erratic. The self-discipline required of management, and particularly of the chief executive, to make such a program effective practically guarantees a major crop of failures.

But the pressure to develop a sounder basis for judging executive performance is so great that progress over the next five years will surely be more spectacular than now seems possible. The future development of our free enterprise economy depends on our ability to out-produce the various state-dominated economies. And this ability, in turn, depends heavily on the release of the creative energies of the individual by a more effective use of the only measurable incentive device at our command—compensation in all its facets.

One of the great weaknesses in compensation administration today is the fragmentation of the responsibility. Marketing, manufacturing, and accounting are relatively clearly defined management functions, and some *one* person usually is charged with responsibility in each of these areas. But compensation consists of many elements, and responsibility for the bits and pieces is usually widely scattered.

Consider the compensation roster: salary, bonus, profit-sharing trusts,

pensions, deferred - compensation contracts, stock options, stock purchase plans, savings plans, and so on. And choosing the proper combination of the elements is only part of the compensation job, for no combination will be effective unless it is applied in conjunction with painstaking performance appraisal.

The entire compensation structure rests on the way the business is organized and run, for executives normally are paid in terms of their responsibility. This, in turn, means that some central body must be knowledgeable enough to put the pieces together to form a consistent whole.

Who Sets the Pattern?

Where does the responsibility for each of the compensation elements rest? Theoretically, the personnel department provides staff assistance to top management in the compensation area. But practically speaking, the entire management group, plus the board of directors, gets into the act.

Rare indeed is the company that looks to one executive to plan, initiate, and administer the broad executive motivational responsibility that is compensation. And too few recognize the relationship between the various compensation devices. A pension plan, or a bonus plan, or a deferred-compensation plan will be studied and adopted with no serious consideration of the over-all needs of the company, or of the interrelationship among these devices. The "bits and pieces" approach is fairly widespread and very expensive.

But perhaps this is a passing phase. There appears to be a growing understanding of the advantages of sound compensation administration. Equitable executive salaries require clearly defined individual responsibilities; soundly organized responsibilities make it possible to pinpoint accountability; accountability makes possible promotion and bonus decisions based on a knowledgeable appraisal of individual performance; and finally, this speeds up the development of better executive talent. In other words, effective compensation administration virtually forces better management.

But none of this is easy. Higher salaries alone never corrected human frailty. Management still has to manage. That is what it is paid for.

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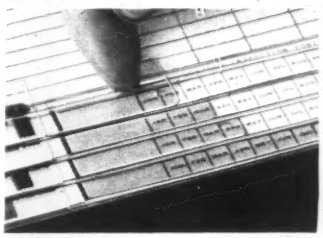

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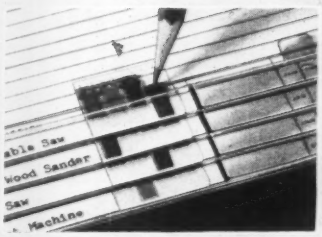

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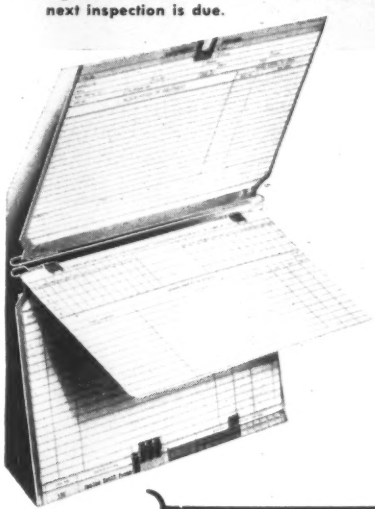

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What did arouse our curiosity was his cryptic reference to that "note here on my pad." Well, it turned out the gentleman had written the note to himself. Seems he had been thinking of coming in to see us for a long time, but had never found a particularly *propitious* moment. Finally, he jotted down the note for an exact hour and day in the future. When the time rolled around, he just made the call automatically.

His method struck us as an excellent one, and we pass it along to like-minded bankers. In honor of the gentleman who gave us the idea, we're going to keep special watch on our phones every Monday morning at 10:30.

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HELP WANTED: 404,580 NEW SALESMEN

New survey of 2,500 companies points up hiring practices and the present pay of salesmen.

IN KEEPING with the labor market in general, there is a serious shortage of sales manpower. This is one of the many findings to come out of a new survey of 2,500 companies by the National Sales Executives, Inc., a non-profit association of sales leaders. Companies surveyed were in all size groups and in a variety of industries.

These companies alone are actively seeking over 404,580 new salesmen. To guide the companies in their recruiting, the NSE gathered detailed data about compensation, experience and educational requirements, fringe benefits, age barriers, car allowances, and other facets of the selling job.

The survey covers salesmen in these six lines:

- Consumer route selling
- Business route selling
- Consumer specialty selling
- Business specialty selling
- Retail selling
- Industrial selling

Business route salesmen cover a predetermined list of business customers to whom they sell familiar supply items—such as office or mill supplies and production materials. Theirs is primarily repeat business. The median starting pay for these salesmen falls between $350 and $399 a month. The median pay of the top third of the sales force is between $700 and $749. Most of the companies—71 per cent—used a combination of salary and commission, and 22 per cent were on straight commission. While 80 per cent of the companies provide both life and accident insurance, only 9 per cent provide their salesmen with company-paid retirement plans.

The current hiring requirements for business route salesmen:

- 24 per cent of the companies require a college education.
- 35 per cent insist on previous experience in selling the same product or service.
- 48 per cent will not hire men over 35 years of age.

Business specialty salesmen handle goods or services with which the customer is not likely to be familiar. They receive no specific list of customers from the company and must canvass for the major portion of their volume. They handle such items as business machines, advertising, business insurance, air conditioning, and special services.

The median starting rate for these salesmen also falls between $350 and $399 a month, but the pay for experienced salesmen is better than for business route salesmen. The median for the top third is slightly over $800 a month.

About 61 per cent of the companies have salesmen on a combination of salary and commission, while 31 per cent use straight commission. Life and accident insurance is provided by 68 per cent of the companies, but only 5 per cent have company-paid retirement plans.

These are the current hiring requirements for business specialty salesmen:

- 42 per cent of the companies require a college education.
- 37 per cent require previous experience in selling the same product or service.
- 50 per cent will not take men over 35 years of age.

Industrial salesmen are usually engineers or technically trained experts on the products and processes they are selling. They sell machinery and supplies or services that involve heavy expenditures and considerable alterations in the customer's plant.

The median starting salary for industrial salesmen is now close to $450 a month. Those in the top one-third of this group have an average income of $800 a month.

About 66 per cent of the companies have industrial salesmen on a combination of salary and commission. Only 12 per cent of the reporting companies use straight commission. Insurance protection is afforded by 76 per cent of the companies, but only 6 per cent offer company-paid retirement plans.

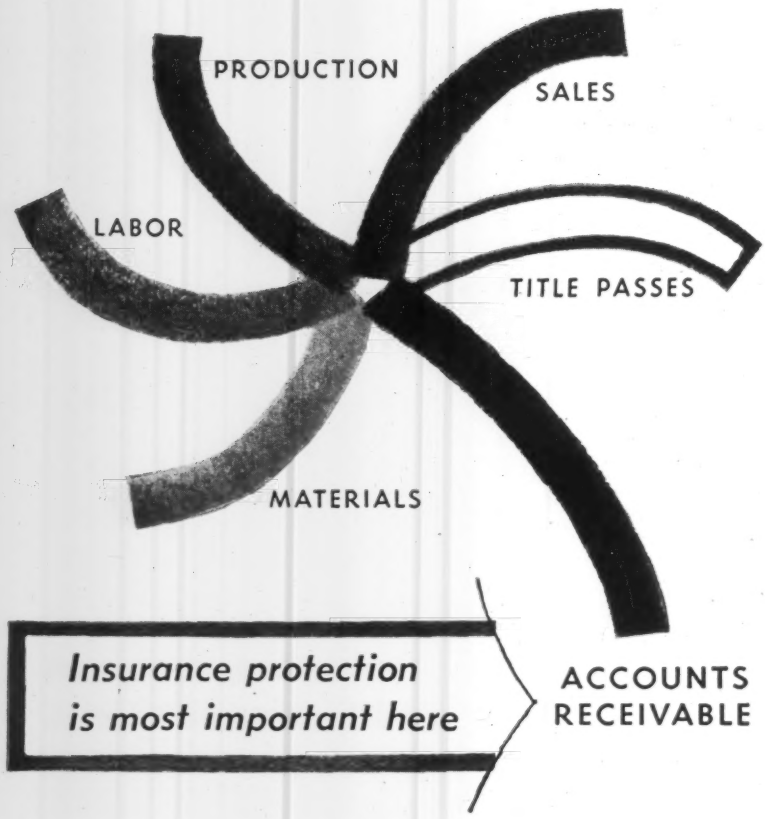
These are the practices which companies are now adhering to in hiring industrial salesmen:

- 62 per cent of the companies insist on a college education.
- 45 per cent require previous experience in selling the same goods or service.
- 38 per cent will not consider a man over 35 years of age.

Why do companies set up an arbitrary age barrier against salesmen? The NSE points out that only 7.6 per cent of the companies were able to come up with a logical reason—such as physical requirements for the job—in explaining the age barrier. About 41 per cent merely said that it was "company policy," while another 41 per cent said that the age was set because it was "their opinion." The NSE points out that even the supposedly logical reasons should be carefully reappraised in the light of today's tight labor market. It is very possible that once-valid reasons have now become unrealistic.

The complete study, which gives detailed information for all size groups of salesmen, can be obtained from the National Sales Executives Inc., 136 East 57th Street, New York.

—T. K.



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PICKPOCKETS . . . *continued*

across the nation have been received recently about propositions for the sale of business properties. On the strength of glowing promises about large prices to be gotten for a business property, companies have paid out advance fees of $1,000 or more to "salesmen." Reputable real estate brokers, of course, almost always collect their fees from the proceeds of the sale.

In most instances the companies have received little more than a listing in limited circulation "directories," a few pieces of direct mail, and perhaps a small ad in a local paper. The fine print of the contract—which too frequently the business man ignores for the promises of the "salesman"—guarantees little more than the "best efforts" to sell the property.

The salesman frequently promises —orally of course—that the property will be sold within 90 days or the advance fee will be returned. According to the National Better Business Bureau, such promoters are unable to provide evidence that the "service" they render is valuable.

Of course this listing of the half dozen most prevalent schemes against business doesn't in any sense exhaust the list which is as wide ranging as the human imagination.

Manufacturers find some of their markets missing as the result of counterfeit products produced by fly-by-night companies. Radio and TV tubes have been the target in recent years.

Other companies lose money to counterfeiters who reproduce their securities or trading stamps. Of course, retailers and distributors lose substantial sums from forged checks while large manufacturers frequently receive unordered goods. Stolen or faked labels are an irritant in the clothing industry.

"Boiler rooms"—high-pressure self-styled stock brokers—are as busy as ever; their favorite appeal to business men is now oil and uranium stocks. Crooked collection agencies bilk business out of the money due by exorbitant fees or else by merely absconding with the proceeds.

Although fraud is a comparatively minor cause of business failure—only about 2 per cent of the 1956 failures were caused by fraud—it can be hobbling particularly in smaller businesses. For example, a small build-

ing materials distributor tied up a big chunk of his capital in an inventory for a new kind of paint which a fast-talking operator sold him.

When the gullible fellow put his name on the dotted line, he thought he was signing up for a lucrative distributorship for an entirely new kind of paint which would obsolete all other types. Like other victims, he thought that a deal which sounded too good to be true actually could be. The glowing promises that convinced him he was getting in on the ground floor didn't appear in the contract, of course. A quick trip to an impressive office (which was in reality only a front) also was part of the pitch.

The sorry result for the distributor was a heavy inventory of over-priced paint on which he had to take a considerable loss a year later.

According to the Federal Trade Commission, the most common type of serious fraud on business is the false distributorship.

But in this entire circus of chicanery, the most persistent and damaging—particularly to a small company—is the credit fraud.

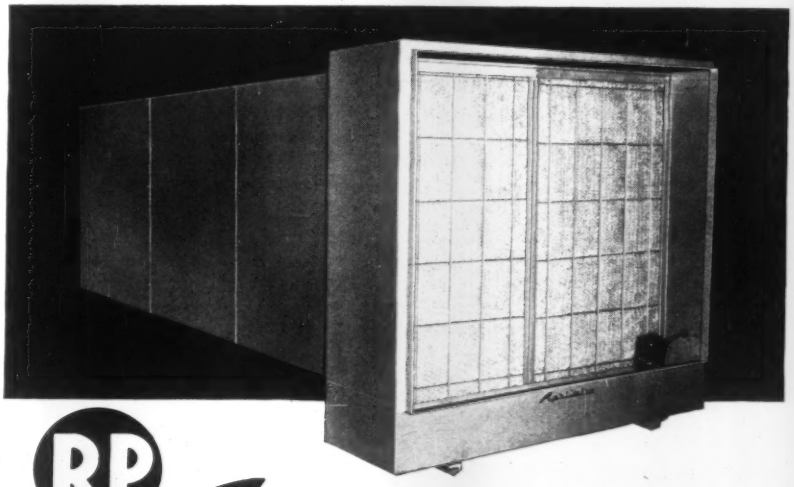
This involves, of course, the dishonest acquisition of merchandise and the rapid reshipping and resale of it. Credit swindlers operate by buying out a small reputable company and ordering merchandise on its good name. Or again, they may set up a mere front—a phony company with a name so similar to an established concern that the unwary business men will not notice the difference.

Here are a few of the tell-tale signs by which you can sense a credit fraud:

- The sale will be a windfall—completely unexpected and with little or no selling effort involved.
- The amount of the order will be disproportionate to the size of the company.
- The goods ordered will be unrelated to the regular line in which the company deals.
- Information will be scanty.

In a society in which profit-making is the great flywheel, there will always be those few who put profit above probity. But the vast and overwhelming majority of business men demonstrate daily their strong belief that the honest pursuit of a just profit is the surest way to serve the public good.

NEW INDUSTRIAL HUMIDIFIER DELIVERS *PERFECTLY CONTROLLED* WINTER-TIME HUMIDITY!



RP Aprilaire

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Designed on an entirely new principle of humidification, Aprilaire Industrial Humidifiers constantly, accurately, provide and maintain the exact humidity required. Recordings of an industrial installation during a 24 hour period, with a humidistat setting of 31%, show the relative humidity range held between 27% and 34%, despite an outside temperature change from 35° to 0°.

Important Features—HIGH CAPACITY (unit sizes up to 10 gallons per hour); POSITIVE CONTROL (introduces humidity as needed—only when needed without lag or over-run); FLEXIBILITY (for gas, steam or hot water heat source); MINIMUM MAINTENANCE (the only liming occurs on inexpensive, replaceable evaporating pads); ISOTHERMAL OPERATION (has no temperature effect on humidified air); BACTERIA REMOVAL (the Aprilaire's unique method of humidification provides an important plus feature—70% of all bacteria in air stream passing through unit is removed).

Residential Aprilaire models available too—write for complete information.

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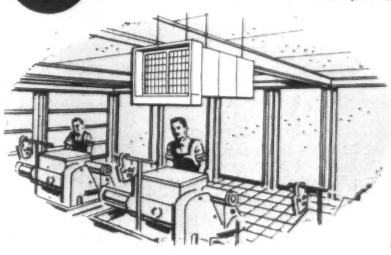

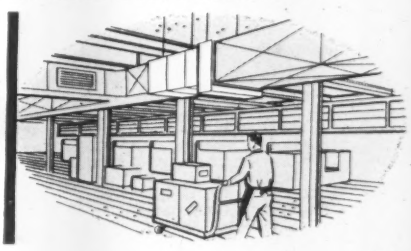

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HEAD OFFICE: SAN FRANCISCO

Statement of Condition, December 31, 1956

RESOURCES		LIABILITIES		
Cash on Hand and in Banks	$ 297,837,454.86	Deposits		$1,486,912,467.53
U. S. Government Obligations	371,653,144.88	Acceptances Outstanding		1,632,733.95
State, County, and Municipal Bonds	57,644,036.60	Reserve for Unearned Discount		14,021,203.81
Other Bonds and Securities	25,427,683.68	Reserve for Interest, Taxes, etc.		8,967,248.72
Stock in Federal Reserve Bank	2,400,000.00	Other Liabilities		3,023,168.69
Loans and Discounts	839,660,477.68	Capital Funds:		
Bank Premises and Equipment	14,020,376.88	Capital Stock ($10.00 par value)	$27,812,500.00	
Other Real Estate	1.00	Surplus	52,187,500.00	
Customers' Liability Under Acceptances	1,616,151.45	Undivided Profits	25,797,633.09	105,797,633.09
Accrued Interest Receivable and Other Assets	10,095,128.76			
Total Resources	$1,620,354,455.79	Total Liabilities		$1,620,354,455.79

United States Government and other securities carried at $165,204,336.28 are pledged to secure U. S. Government Deposits, other public funds, trust deposits, and for other purposes as required or permitted by law.

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PAGING POOR RICHARD

IT'S FASHIONABLE to be thrifty again. And it's also necessary. Cheap money taught business men some bad habits over the past two decades and now that interest rates have risen, many proprietors and managers of enterprises are rediscovering the fact that somebody has to save a dollar before someone else can invest it.

Despite the theories of Keynes on the merits of spending one's way to prosperity, and the economic fallacies that crept out of the doldrums of the depressed 1930's, there is no substitute for earning and saving, and the principle applies to the corporation and state as well as to the individual. We have acquired some bad management habits that are partly hidden under the lush velvet of an inflationary period. The income tax vagaries have encouraged questionable tactics in the spending of money for tax benefits, a maneuver in which opportunism occasionally overrides sound financial judgment. Any sustained drop in sales revenues uncovers the secret sins of management, and the recent credit freeze is a word to the wise to review fiscal policies.

Good management looks at a program of expansion with an eye toward the long-term risk and reward. Whether the investment be a new store front for a retail shop, a new converter for a steel mill, or a new warehouse for a distributor, the money should be provided out of earnings, or new money invested. Not too much of it can come out of the working capital without hampering the productivity of the store, mill, or service. In a day when income tax sluices off much of the earnings that might be used for the replacement of equipment or improvement of facilities, and the banks are reluctant to supply our demands for risk capital, there is the temptation to dip into working capital reserves to meet the emergency.

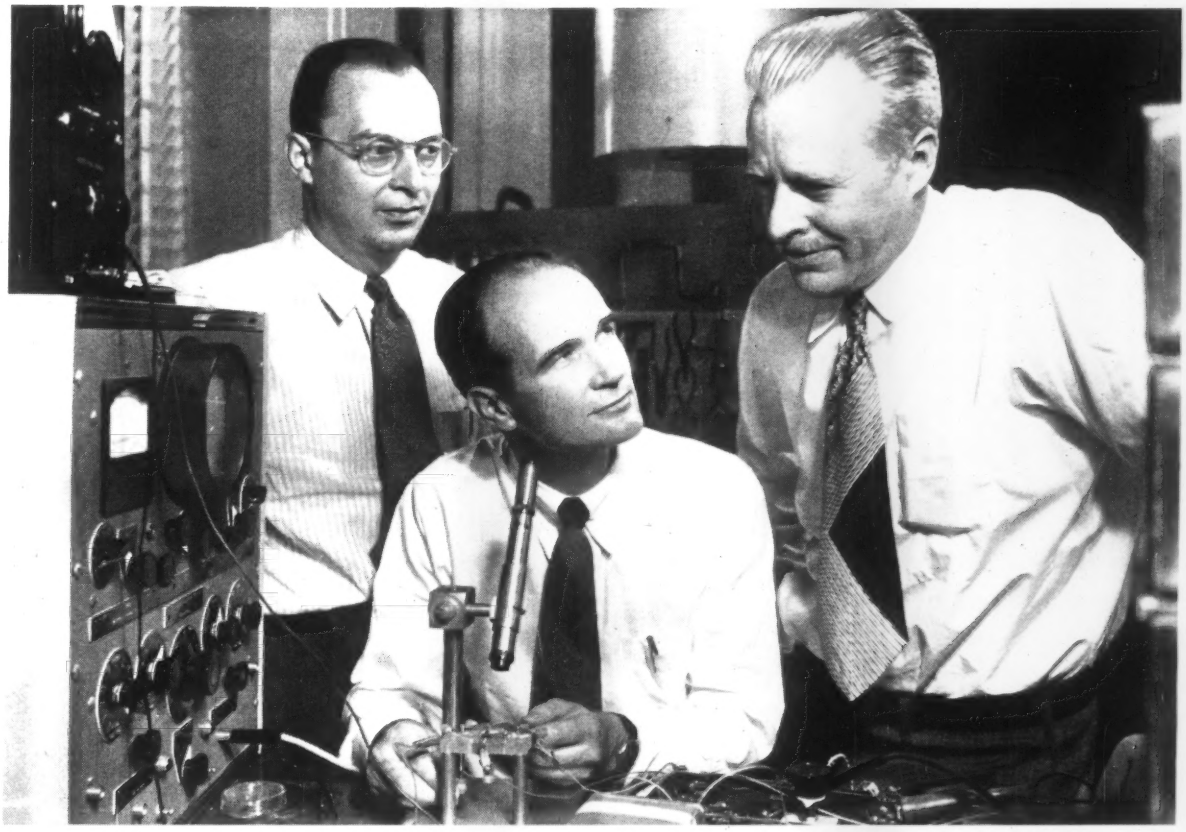
Working capital moves through a cycle of inventory in raw materials, then processed goods, distribution and sales. If the cycle follows the established pattern, the capital returns with an earned profit. Any attempt to drain off working capital for the long-term assignment may interrupt the cycle, disturb the credit relations of suppliers and customers, and even endanger business survival.

There is a definite, and at times vague, relationship between the thrift dollar and the credit dollar. In an inflationary period, the two may appear to be tugging in opposite directions, and confusing the spectator whose economic virtues are anchored in Ben Franklin's truism of "A penny saved is a penny earned." Poor Richard's Almanac is not yet out of date.

Ignoring all the technical aspects of banking functions and the financial jargon about currency in circulation, demand deposits, Treasury certificates, and all the cash and paper equivalents of money, we know we are not accumulating current thrift dollars at the accelerated pace needed to give substance and stability to credit and investment dollars. The action of the Federal Reserve Board in raising the rediscount rate on loans is evidence of the current pressure of demand over supply. The increase in savings bank interest rates dramatizes the need for diverting more earnings into thrift accounts and reserves. The pause may be awkward for the corporate management or for the individuals who are leaning too far into the future, and find themselves off balance.

Thrift is not only fashionable—it is a highly necessary virtue in a period of inflation when the pumps have run out of air. There's no need for penury, and no excuse for profligacy. But there is a need for the practice of an old-time discipline in saving for the rainy day—because we may occasionally need a quick dollar even when the sun is shining.

The Editors



(Left to right) Dr. John Bardeen*, Dr. William Shockley* and Dr. Walter H. Brattain, shown at Bell Telephone Laboratories in 1948 with apparatus used in the early investigations which led to the invention of the Transistor.

Bell Telephone System Salutes Three New Nobel Prize Winners

Drs. John Bardeen, Walter H. Brattain and William Shockley are honored for accomplishments at the Bell Telephone Laboratories

The 1956 Nobel Prize in Physics has been awarded to the three inventors of the Transistor, for "investigations on semiconductors and the discovery of the transistor effect."

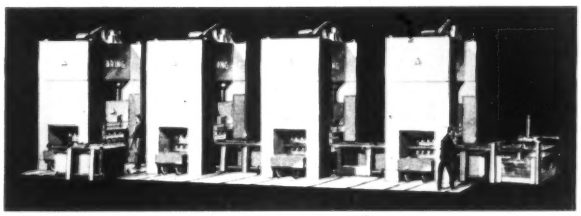
They made their revolutionary contribution to electronics while working at Bell Telephone Laboratories in Murray Hill, N. J. Discovery of the Transistor was announced in 1948. We are proud to have been able to provide the environment for this great achievement.

This is the second Nobel Prize awarded to Bell Telephone Laboratories scientists. In 1937 Dr. C. J. Davisson shared a Nobel Prize for his discovery of electron diffraction.

Such achievements reflect honor on all the scientists and engineers who work at Bell Telephone Laboratories. These men, doing research and development in a wide variety of fields, are contributing every day to the improvement of communications in America.

**Dr. Bardeen is now with the University of Illinois, and Dr. Shockley is with the Shockley Semiconductor Laboratory of Beckman Instruments, Inc., Calif.*

BELL TELEPHONE SYSTEM



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Transflex means primarily, transfer feeding *plus* flexibility, but it can mean a lot more. Clearing engineers can tell you how Transflex can shrink die changing time to minutes. Transflex can help you supply two different assembly lines with stamped parts and do away with warehousing of in-process components. We'll be glad to tell you more about Transflex. Fact is, we're so hepped about it we think it's a new kind of production economics. Maybe you'll think so, too, when you know more of the story. Write for booklet "The New Economics of Press Automation." It tells all.

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